Super-8, 16mm and Video Effects!

BUILD YOUR OWN AERIAL BRACE

STARLOG presents

CINEMAGIC™

THE GUIDE TO FANTASTIC FILMMAKING

$3.95
SUMMER

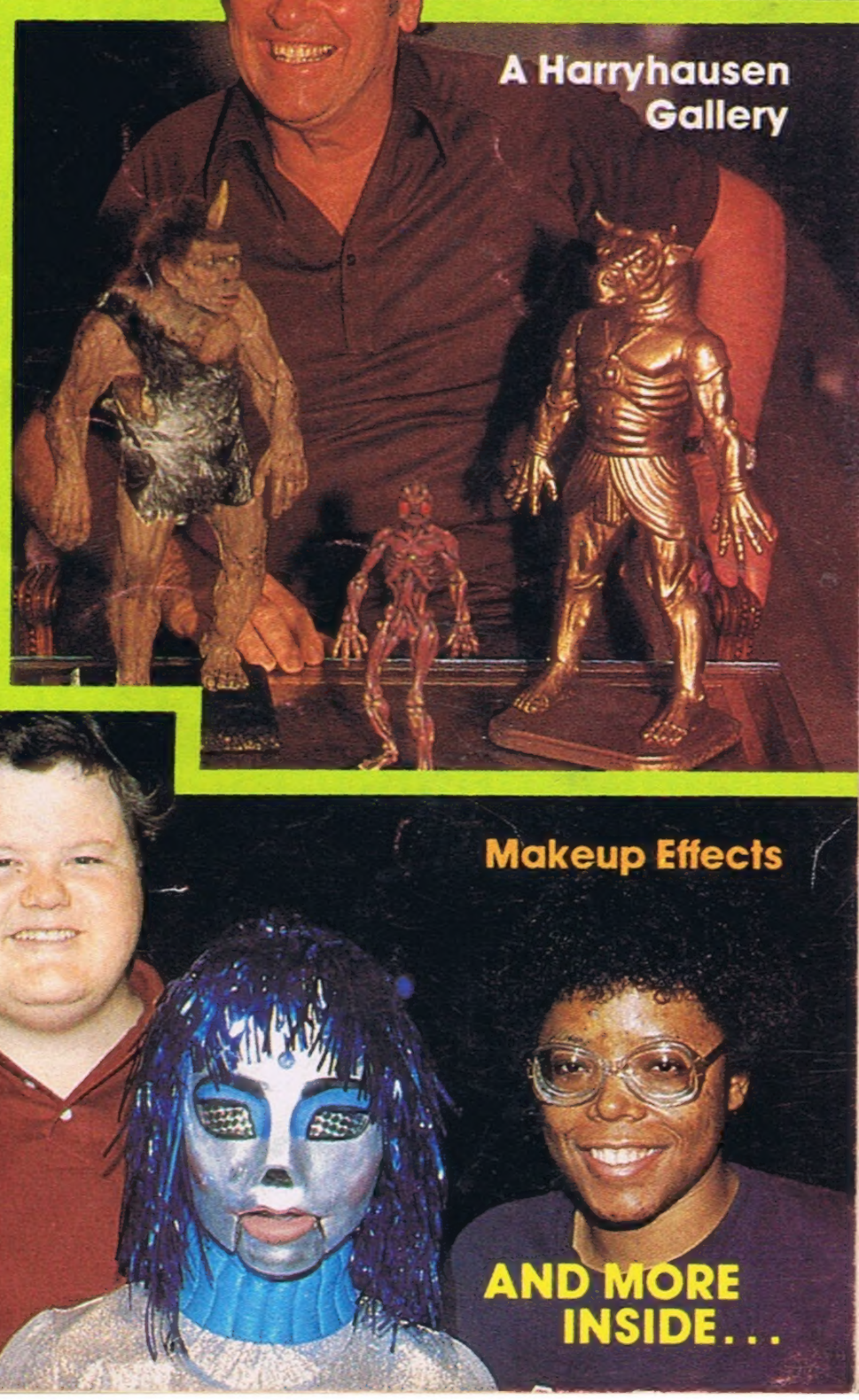
£2.00
Number 30

STARLOG GROUP

Easy Sculpting Tools

Electronic Eyes

Stop-Motion Fantasy



A Harryhausen Gallery

Makeup Effects

AND MORE INSIDE...

YOUR PERSONAL PASS TO

WORLDS OF IMAGINATION!

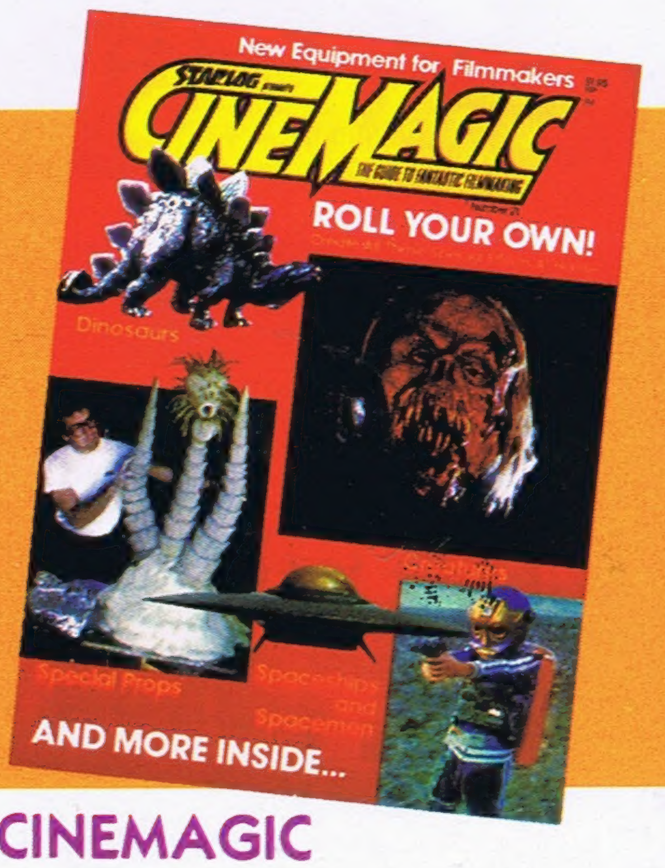
Travel into a universe of wonder and thrills, while learning the secrets of special effects and movie production.

STARLOG

The most popular science fiction magazine in the solar system brings you all the latest news, TV and film previews, special effects secrets, interviews with actors, authors, artists, even astronauts! Loaded with color photos, letters from fans, David Gerrold's monthly column, Space Age Games, Con Calendar, and much more!

FANGORIA

The magazine of movie chills and terror, featuring page after page of "bloody good" color photos, scenes from new splatter films, horror bookshelf, readers' outspoken letters, interviews with special effects make-up artists, movie directors, writers, actors—all the news and excitement from the world of horror!



CINEMAGIC

This is the magazine for all young film and video makers—the only publication that teaches the techniques of production and special effects—especially if you're into science fiction, horror and fantasy films. New equipment reviews, how to contact other filmmakers in your area, low-budget tricks and tips.

Published by O'QUINN STUDIOS these exciting publications are the quality leaders in magazines for youth. "STARLOG is a lusty giant, symbolic of the new stature of science fiction in the visual media."—ISAAC ASIMOV

STARLOG and FANGORIA are available at most local newsstands, or subscribe to all three magazines and SAVE MONEY!!!

DISCOUNT SUBSCRIPTION FORM:

O'QUINN STUDIOS
475 Park Ave. South
New York, NY 10016

____ **STARLOG**
12 issues/1 year $27.49
____ Foreign: $36.49

____ **FANGORIA**
8 issues/1 year $15.98
____ Foreign: $21.98

____ **CINEMAGIC***
4 issues/1 year $13.98
____ Foreign: $18.98

*Please note that CINEMAGIC has a new, larger format; twice as many pages as before!!!

Total Enclosed: $_____
(cash, check or money order drawn to STARLOG PRESS)

NAME _____

ADDRESS _____

CITY _____

STATE _____ ZIP _____

COUNTRY _____

Please allow 4 to 9 weeks for delivery of first issue. Foreign orders, send U.S. funds only.

CINEMAGIC

Issue #30

Editor's Bench _ 4

Less is More

In amateur filmmaking, bigger is not necessarily better.
By Douglas Borton. 6

Electronic FX

Electronic eyes that blink as you speak!
By Chris E. Stevens. 10

Easy Effects

Build your own animation gauge!
By Jack Imes, Jr. 12

Books

Books for filmmakers—valuable sources of information and technique, for the filmmaker. 16

Filmmakers' Forum

A regular department devoted to our readers' comments and correspondence about fantasy filmmaking. 17

Spooky Spiders

Building an eight-legged animation armature for a scary spider-monster.
By Ken Brilliant. 18

Harryhausen Gallery

Rare photos of a menagerie of fantasy creatures crafted by a legendary master.
By Paul Mandell. 20

Careers

Jim Danforth's multi-faceted special-effects career, Part III.
By John Dods. 26

The 60/40 System

Launch your star cruiser into outer space with this beam-splitter technique.
By Peter Montgomery. 30

Skull Island

The lost Spider Pit sequence from the original *King Kong*.
By Paul Mandell. 34

Producer's Bulletin Board

Latest news of our reader's productions. 38

Stop-Motion Fantasy

Filmmaker John Matthews brings children's stories to life with stop-motion animation.
By Tony Alderson. 40

A Thousand Faces

Filmmaker-sculptor Doug George's clay characters.
By John Clayton. 46

Cine-Makeup

The makeup effects of Diane Hammond and Tim Davis.
By John Dods. 48

Grip Kit

Useful accessories for filmmakers. 54

Festivals

News on film festivals around the country. 55

Aerial Brace

Make your fantasy creatures fly with an easy-to-build aerial brace!
By Ted Richard Rae. 56

Stop-Motion Studio

Easy sculpting tools.
By John Dods. 64

Cinemagic Marketplace

Classified advertising and announcements. 66

About the cover: (Clockwise from top left) Build yor own sculpting tools, see page 64. Photo by John Dods; Make electronic eyes that flicker as you speak, see page 10. Photo by John Clayton; Ray Harryhausen poses with a collection of his famous fantasy creatures, see page 20; Tim Davis (left) and Diane Hammond (right) pose with one of their makeup creations, see page 48. Photo by Linda Sweeting; Animator Jim Aupperle poses a stop-motion raccoon for a scene from John Matthews' *Frog and Toad are Friends*, see page 40. Photo courtesy of Tony Alderson.

CINEMAGIC

Issue #30

Publishers
Norman Jacobs/Kerry O'Quinn
Associate Publisher
Rita Eisenstein
Assistant Publisher
Milburn Smith
V.P., Circulation Director
Robert Rachoi
Production Director
Bob Sacks

Editor
David Hutchison
Art Director
W.R. Mohalley
Managing Editor
John Clayton
Associate Art Director
Emily Sloves
Senior Designer
Lisa Vallez
Designers
Shane Arbogast
Chris Hardwick
Matt Spisak

Editorial Contributors
Tony Alderson
Douglas Borton
Ken Brilliant
John Dods
Jack Imes, Jr.
Paul Mandell
Peter Montgomery
Ted Richard Rae
Chris E. Stevens
Assistant Editors
Carr D'Angelo
Max Rottersman
Mark Shannon
Special Projects
Linda Laias
Damon Santostefano
Editorial Assistants
Ed Berganza
Production Assistants
Connie Bartlett
Hector Colon
Elizabeth DeJesus
Chris Kwiath
Alison Lott
Jenny Milovcic
Andrea Passes

Financial Manager
Joan Baetz

Founder of CINEMAGIC
Don Dohler

Advertising Information: Rita Eisenstein
(212) 689-2830

Editor's BENCH

Our Summer Issue

It probably comes as no surprise, but the response to our expanded format has been very encouraging. With more pages in each issue I have been able to expand the scope of the magazine, so that more filmmakers, video artists and movie buffs can find something unique and enjoyable in CINEMAGIC.

Along those lines, Paul Mandell has contributed another of his authoritative articles on the great classics of special effects movie making. This time we journey into the hidden depths of Skull Island, the mythical location of *King Kong*. Before the film was released some sequences were deleted and never restored. The mysterious Spider Pit sequence has been talked about for generations, but very few people have actually seen any of the material. Mandell includes the original scene descriptions from the script and blowups from some early test frames of the scenes originally created by Willis O'Brien. You will *not* see these scenes in any existing print of the film.

John Dods' fascinating discussion with outspoken effects artist Jim Danforth concludes in this issue. In future issues, readers can look forward to more highly detailed nuts and bolts articles designed to give ambitious filmmakers the benefit of Dods' first hand experiences.

For fans of that legendary master of stop-motion artistry, Mandell has garnered a collection of Ray Harryhausen's sculptures, which were on display a few years back. The creatures have been illustrated with scenes from their respective films and capsule comments.

Stop motion has always been the mainstay of this magazine and I am pleased to have effects artist Tony Alderson reporting on John Matthews' latest animated short *Frog and Toad are Friends*. Tony has included a superlative selection of color closeups of precision techniques for armature machining and unusual special effects techniques. I have also chosen to reprint Ted Rae's invaluable discussion of aerial brace supports, which originally appeared in CINEMAGIC #1.

Other highlights in this issue include an introductory look at beamsplitter in-camera effects, which work as well for video as they do for film. There is another installment in our Electronic Effects and Easy FX departments and a look at the makeup artistry of Diane Davis and Tim Hammond.

I know these double-size issues have been enjoyed by you, but I've had more fun with the last four issues, than I ever had with the first 26.

—David Hutchison

CINEMAGIC is published quarterly by STARLOG PRESS, INC. 475 Park Avenue South, New York, NY 10016. This is issue #30 (Volume 6, No. 4) for Summer. ISSN #0090-3000. Subscription rates: $13.98 for one year (four issues) delivered in the U.S., Canada and Mexico, foreign subscription $18.98 in U.S. funds only. **New Subscriptions:** send directly to CINEMAGIC, c/o STARLOG PRESS, INC., 475 Park Avenue South, New York, NY 10016. Notification of **change of address** or **renewals** send to CINEMAGIC. Subscription Dept. P.O. Box 142, Mt. Morris, IL 61054-0142. **Postmaster:** Send change of address to CINEMAGIC Subscription Dept., P.O. Box 142, Mt. Morris, IL. 61054-0142. Application to mail at second class postage rates is pending at New York, NY and additional mailing offices. Printed in U.S.A.

CINEMAGIC BACK ISSUES

#1—Backwinding Super-8; [illegible]-Construction. **SOLD OUT!**

#2—Spaceship Model Making; Blood Makeup; Smoke Generator; Light Beam Effects; Making an SF Logo.

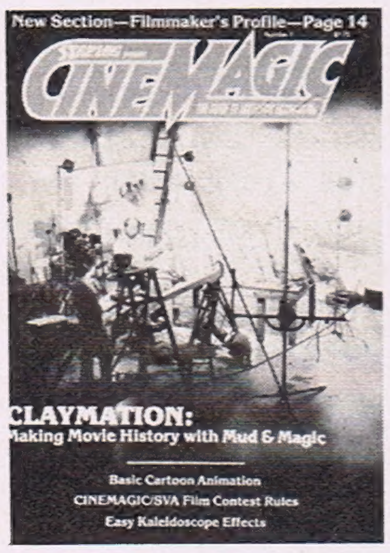
#3—Robot Construction; Developing an Animation Style; Fluid Art Animation; Electronic Special Effects:

#4—Aerial Image Optical Printer—Construction; Wire Armatures; A-B Rolling; More Electronic Special Effects; Fog and Mist Effects.

#5—Aerial Image Optical Printer—Usage; Widescreen Super-8; Slit Scan Effects; Gleaming Eyes for Stop-Motion Models.

#6—Amazing Electronic Gadgets—cheap!; Bring Your Alien to Life—Latex Masks; Basic Editing Techniques; Invisible Man Effects.

#7—Basic Cartoon Animation; Claymation; Kaleidoscope Effects; Profile—Damon Santostefano.



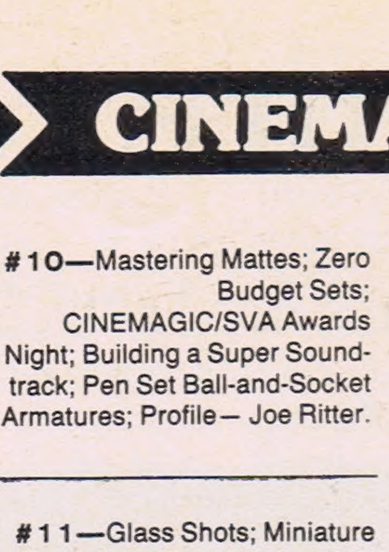
#8—Video Tape Transfers; Reverse Filming Effects; Lab Services; *Clash of the Titans* Preview; Profile—Paul Vitous and Mike Antonucci.

#9—Animating Pogo; Lithographic Film Titles; Sets on a Shoestring; Profile—The Langley Punks.

#10—Mastering Mattes; Zero Budget Sets; CINEMAGIC/SVA Awards Night; Building a Super Soundtrack; Pen Set Ball-and-Socket Armatures; Profile— Joe Ritter.

#11—Glass Shots; Miniature Explosions; Figure Animation; Bloody Hair Hunks; Profile—Koch and Lohr.

#12—Makeup Magic—Latex Appliances; Rotoscoping; Zero Budget Ray Gun; Profile—Dean Barnes and Greg Gilger.



#13—Slit Scan; Creating UFO "Lightships"; Model Interiors; More Electronic Special Effects; The Saturn Machine; Profile—Bonnie Borucki.

#14—Storyboarding; Sound Effects Generator; Miniature Devastated Cities; Charles Jones' 16mm Space Epic. Profile—Jerry Parisi.

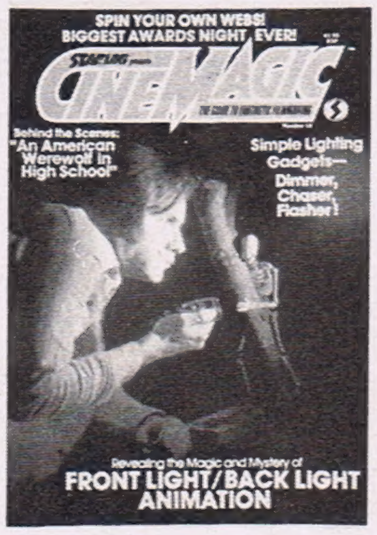
#15—Script Writing; Miniature Lighting Special Effects. Careers—George Lucas and John Dykstra; Super Depth in Dioramas; Profile—Ralph Miller.

#16—Script Writing, Part 2; Electronic SPFX—LED Circuits; Flat Art Explosions; Careers—Frank Van der Veer; Build Your Own Camera Crane; Profile—Steve Parady and Bill Rudow.

#17—Script Writing, Part 3; Production Managing Low Budget; Electronic SPFX—Light "Chaser"; CINEMAGIC/SVA ContestRules; Secrets of Graphic Gore; Profile—Chris Callaghan and Bob Griffith.

#18—Making Monsters; Tie-Downs for Animation Models; Accessories for Filmmakers; Electronic SPFX—Redesigned Sound Generator; Profile—Al Magliochetti.

#19—CINEMAGIC/SVA Awards Night; Build Your Own Cob Web Spinner; High School Werewolf; Careers—George Melies; Electronic SPFX—Lighting Gadgets; Front Light/Back Light Animation Technique.



#20—Articulated Full Head Masks; Dream Screen; Precision Ball-and-Socket Armatures Parts; Electronic SPFX—Sync Strobe; Profile—Joey Ahlbum.

#21—Custom Spaceships; Electronic SPFX—DC Strobe; Careers—Robert Short; Foam Rubber Build-up Method; Creating a Monster; Profile—Deborah Von Moser.

#22—Miniature Landscapes; Electronic SPFX—Strobe Accessories; Title Spinner; Ball-and-Socket Armature Parts; Making Creature Makeup; Profile—David Casci.

#23—Microcomputer Animation; Make Your Own Cross-Star Filter; Animation Armatures; CINEMAGIC Back Issues Guide; Mark Sullivan's *Highrise;* On Location—*Zyzak is King.*

#24—Awards Night; Scratch-Building Model Spaceships; Glowing Eyes for Creature Masks; Animation Tips; Easy Armatures; Careers—Roger Corman's Millennium Studios; EZ Effects—Make Your Own Fog Filters.

#25—Build Your Own Camera Stabilizer; Color Filter FX; Shooting Publicity Stills; Make Your Own Armor; Electronic SPFX—Digital Frame Counter; On Location—*Dr. Dobermind*

#26—Hand Puppet Monsters; Electronic SPFX—Intervalometer; "Star Zoomer"; Three-Headed Armature; "Is Stop Motion Dead?" Melting Man FX; Animator Tony Laudati; On Location—Mendel Marks.

#27—New Double-size format! The Art of Stop Motion; Split-Screen FX; Rear Screen Techniques; Supply Sources; Sculpting Clay; Jimmy Picker's *Sundae in New York;* Miniature Planets; Ripple Title FX; Casting Molds; Careers—Jim Danforth, Part I; Armatures; On Location—*Raygun's Nightmare.*

#28—Organizing a Film; Jim Danforth on Stop-Motion; A Stop-Motion Epic; Underwater Filming; Pete Peterson; Festivals; Headless Dummies; Casting Actors; Action Stunts; Stop Motion Rock Video; *Pinocchio*; Car Crashes; Makeup FX; Beamsplitter Ray FX.

#29—Special Cable-Control Issue! Introduction to C-C; Building a C-C Control Handle; Building a C-C System; Careers: Jim Danforth, Part II; Marcel Delgado—Master of Miniatures; Filmmaker Karel Zemen; E-Z FX—Animation Compound; George Pal's *Wonderful World of the Brothers Grimm*; Miniature Mechanical Monsters.

CINEMAGIC, c/o Starlog Press, Inc., 475 Park Ave. South, New York, NY 10016.

Add postage and handling to your order: $.80 for one issue; $1.14 for two; $1.60 for three; $2.00 for four; $2.40 for five; $2.70 for six, seven, eight.

Check issues desired.

☐ # 2 — $3.00	☐ #12 — $3.00	☐ #22 — $3.00
☐ # 3 — $3.00	☐ #13 — $3.00	☐ #23 — $3.00
☐ # 4 — $5.00	☐ #14 — $3.00	☐ #24 — $5.00
☐ # 5 — $3.00	☐ #15 — $3.00	☐ #25 — $3.00
☐ # 6 — $3.00	☐ #16 — $3.00	☐ #26 — $3.00
☐ # 7 — $3.00	☐ #17 — $3.00	☐ #27 — $4.50
☐ # 8 — $3.00	☐ #18 — $3.00	☐ #28 — $4.50
☐ # 9 — $3.00	☐ #19 — $3.00	☐ #29 — $4.50
☐ #10 — $3.00	☐ #20 — $5.00	
☐ #11 — $3.00	☐ #21 — $3.00	

NAME _____

ADDRESS _____

CITY _____

STATE _____ ZIP _____

Less is More

In amateur filmmaking, bigger is not better.

By DOUGLAS BORTON

A few years ago I made a short 16mm film about time travel. In the course of this movie, the heroes encounter all manner of prehistoric monsters—a savage deinonychus, some peaceful brontosaurs, a delicate struthiomimus, even a whole herd of chasmosaurs. The heroes also fight a villain and save the human race—all within ten minutes.

Sounds great? Well, it wasn't. The plot was so convoluted nobody could follow it. And because there were so many special effects shots, almost none of them turned out well. I might have been able to do *one* dinosaur successfully—but fifteen? Even Jim Danforth or the wizards at ILM would have found *that* a challenge.

That was when I learned my lesson. If you are making a film for your own pleasure or as a learning experience, then you can and should try every effect you have ever dreamed of. But if you are making a movie for others to see, a film you will want to enter in contests, then you must restrain yourself, and concentrate on telling a simple story, clearly.

The lesson I learned is that, in amateur filmmaking, bigger is *not* better. *Less is more.*

Story Ideas

Choosing the right story idea is half the battle. Start by recognizing what you probably *can't* do. You can't have a cast of thousands. You can't show dozens of dinosaurs or squadrons of spaceships. You can't re-create an alien civilization in your home town, or build the interior of a giant space station in your basement. You can't outdo Ray Harryhausen by having a colossal bronze statue rise out of the sea. And, what's more, you don't *have* to do any of those things.

For instance, why would you *need* a cast of thousands? Almost any story is more effective if it focuses on a few key characters. *Night of the Living Dead* is about hordes of zombies overrunning America—but, aside from a few TV news clips, all we see is a handful of people barricaded in a house. And that is all we need to see.

The same holds true for all the other "epic" ideas mentioned above. There is no need to show a herd of dinosaurs in the jungle—or a single dinosaur rampaging through a city. Do a story about a small baby dinosaur that your character finds on his doorstep and adopts as a pet. Do not try going into space on a Super-8 budget; let space come to you, in the form of an alien's nocturnal visit to your own home. Don't bring a two-hundred-foot statue to life; try a six-inch doll instead.

Once you have a workable idea, you must flesh it out into a simple storyline. One way to do this is to imagine yourself and your friends sitting around a campfire telling stories. Most campfire tales are *short* and suspenseful, with a surprise ending that is either humorous or horrifying. That kind of story is a good basis for a short film.

Above: *I Walked with a Zombie* contains virtually no special effects. Here a couple of scary looking guys carrying torches and a few fresh victims is all that's needed to put the audience on the edge of their seats.

Can *your* idea make that kind of story? If not, then maybe it is not the right idea, after all.

Now suppose you do come up with a good "campfire" tale—a story with a clearly defined central character, an interesting situation, and a brief series of events building logically to a satisfying shock. At this point you might try out your story on some friends to see what they think. Very often, other people will point out flaws in your story which you have overlooked. It is better to have them do it now, when the problems can still be corrected, rather than later, when the problems are on the screen.

Visual Storytelling

After the story comes the screenplay. Every film, even a very simple one, should have a script. The only exception might be documentaries, but even they usually have a rough script indicating the film's structure and theme. The screenplay is the framework of the film, and without it, the film will probably fall apart.

When you write your script, the word to keep in mind is "visual." The great director Alfred Hitchcock had a test for any film: if the sound in the theater were to go off, would the audience still be able to follow the action on the screen? If so, then it was a good film, because it did what movies are all about: visual storytelling.

Nowhere is this more true than in amateur filmmaking. The less visual your story, the more dialogue you will need—and dialogue means trouble.

Dialogue, to be effective, needs to be spoken by trained actors—but in amateur films, the actors are more likely to be your friends and relatives, who will be hard-pressed even to remember their lines, let alone deliver them with conviction. Dialogue also greatly complicates the job of making the movie. It means doing multiple takes of a scene till the actors get their lines right, and slaving over the soundtrack in editing.

Work on your script until every important scene—or, better yet, the whole movie—is purely visual, relying on actions rather than words. And make sure that the actions are straightforward enough to be conveyed without the need for complicated filmmaking techniques.

In those rare cases where you must have dialogue, you are better off using non-synchronized or "wild" dialogue, that can be added later. This approach simplifies both filming and editing, and eliminates the need for a sound camera. Since the words will not match the actors' lips, you should photograph these scenes with the actors in silhouette, in long shot, behind an obstruction, or otherwise obscured from view. Or you can dub dialogue or narration over scenery.

There is an old Broadway maxim that you might also keep in mind: "If you can't make it big, make it funny." This is not always true, of course; there are plenty of small, dramatic movies (and plays) that are intensely powerful. But I have seen dozens of amateur films, and I have yet to find one that was hurt by humor. A good laugh can make up for any shortcomings of technique, story or production value. As proof, consider the recently released South African film *The Gods Must Be Crazy*. This low-budget comedy is no more technically polished than many Super-8 efforts. with non-sync dialogue, crude photography and editing, and even non-professional actors in some roles. But its bizarrely original brand of slapstick has made it a hit.

Night of the Living Dead is about hordes of zombies overrunning America, but all we see is a handful of zombies surrounding a house. That is all we *need* to see.

The Shining was *not* a low-budget film, but the most memorable scene required only an axe, a door and a guy who hadn't shaved for three days. Here, Jack Nicholson looks like he would like to get even with director Stanley Kubrick for making him eat all those cheese sandwiches.

Once you have a good script, your job is to put it on film as simply, economically and professionally as possible. For most science-fiction, horror or fantasy productions this involves two elements—the live action and the special effects.

Getting the Action

Your actors, especially if they are not professionals, may not be prepared for the long and tedious work which even a short film requires. As they get tired, their performances will suffer and so will morale. For their sake and yours, it is best to keep the live action photography rolling smoothly—and rapidly—along.

This requires careful planning. Visit the locations you intend to use and take still photos to help you plot the action. Draw storyboards illustrating every camera angle and movement. Do not include unnecessary shots or camera tricks just to be fancy. If you can cover all the action effectively in a single take, do it. When you must use editing, make every cut count; each new angle on the scene should reveal important new information.

This is a good guideline to follow at any level of filmmaking. But in Super-8, there is an additional reason to keep your editing to a minimum. Whether you use cement or tape, it is impossible to make an "invisible" Super-8 splice. Even a clean splice may not travel smoothly through the projector gate; and the more times you show your film, the more dirt the splice will collect. Splices can also interfere with the soundtrack of magnetically striped Super-8 films. So the fewer cuts you make, the better.

Another way to speed up the live-action filming is to avoid artificial lighting where possible. Movie lights take a long time to set up and often yield flat, washed-out images. Set your scenes in daylight if you can; for night shots, see if you can find enough available light to expose the faster Super-8 film stocks. Shoot a test reel if necessary. All of this means more work in advance, but less work during production—and better results.

The handheld camera, which gives a realistic, documentary feel to a scene, can also make photography faster and easier. But if you will be intercutting these shots with special effects filmed off a tripod, you may find that the two styles do not mix.

Shooting the same scene over and over again to get it right is expensive and tiring. The best policy, in most cases, is to "run through" the scene once without filming, then hope for satisfactory action on the first take. Some Hollywood directors, such as Stanley Kubrick, are notorious for demanding numerous takes in the name of perfectionism. For *The Shining*, Kubrick did eighty-five takes of a scene in which Jack Nicholson eats a cheese sandwich—meaning that the actor had to eat eighty-five cheese sandwiches, after which he threw up. Your cast is not likely to be so cooperative. They would no doubt prefer the approach of Ernest B. Schoedsack, who rarely required more than one or two takes of a scene—and who made such movies as *The Most Dangerous Game*, *Mighty Joe Young*, and *King Kong*.

The Special Effects

In recent years, Hollywood has deluged us with spectacular visual effects. Anybody who loves fantastic films must admire the superb technical work seen in *Return of the Jedi*, *Ghostbusters*, *2010*, and others. We all love to re-create such scenes. But those movies were made possible only by the hard work of hundreds of specialized technicians, utilizing the most sophisticated computerized camera equipment, at a cost of millions of dollars.

An amateur filmmaker cannot beat Hollywood in scope or spectacle, and should not try. There are plenty of effects which amateurs *can* do—if they concentrate only a *few* shots, keep them simple, and get them right.

First of all, ask yourself how many effects your film really needs. Val Lewton produced a series of classic horror movies, including *The Cat People* and *I Walked with a Zombie*, which contain virtually no special effects or special make-up. The films frighten through the power of suggestion. A noise heard in the night . . . a shadow moving on a wall . . . the hint of movement in the darkness . . . these can be more effective than any creature of rubber and plastic.

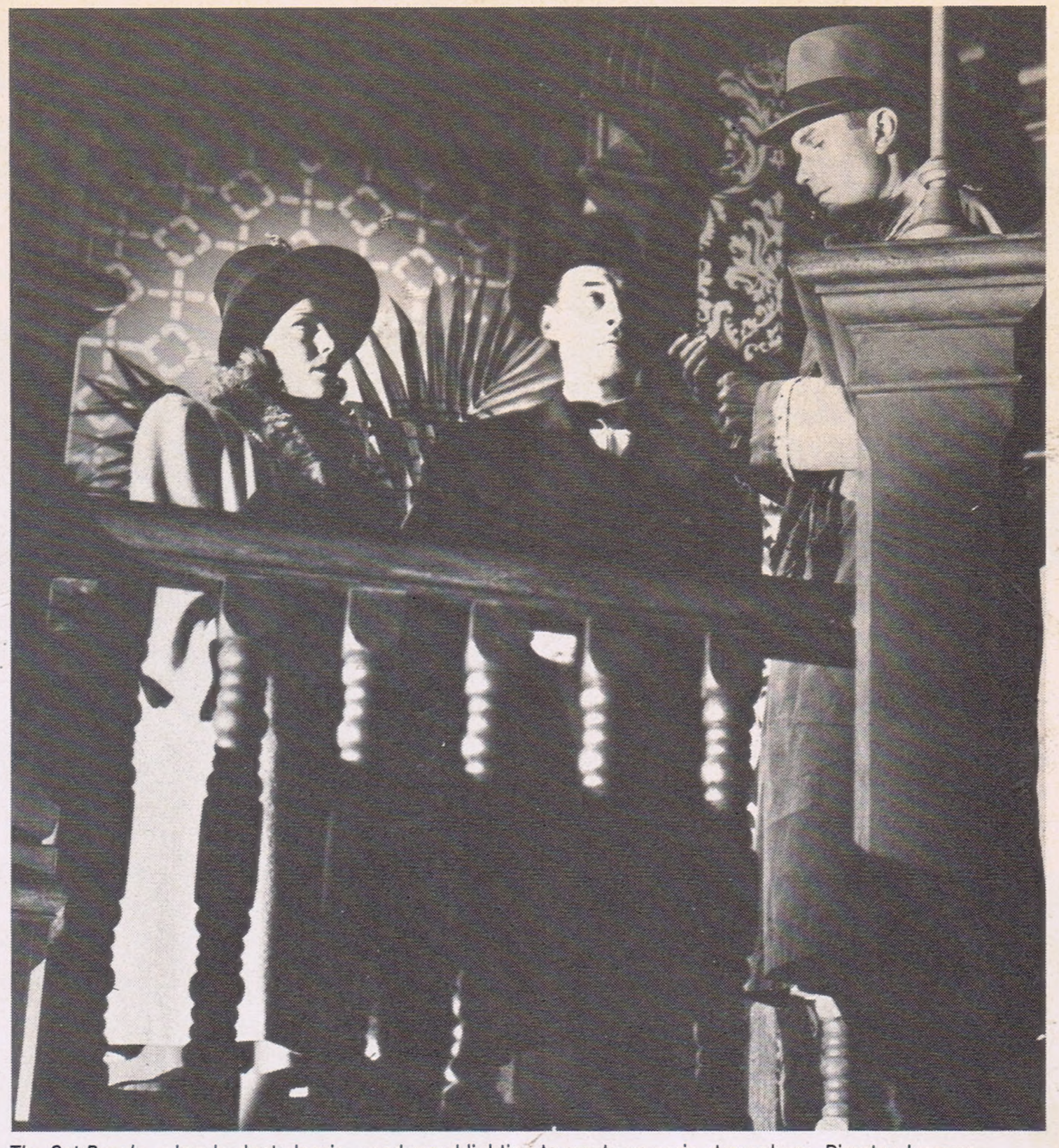
Where an effect is necessary, make it brief. The less time a shot is on the screen, the less opportunity the audience will have to spot its defects. For the same reason, keep the shot dark and shadowy if possible. In *The Beast from Twenty Thousand Fathoms*, Ray Harryhausen used low lighting to enhance the realism—or cover up the rough spots—of stop-motion effects shot on a shoestring budget.

Try to avoid composite shots. The easiest way to suggest that an actor and a

special effect are "together" is through intercutting. Partial mock-ups combined with miniature substitutions are another answer. For instance, you might build a full-scale "monster claw" and have it grab your actor, then cut to an extreme long shot of an animated monster as it pounds a miniature version of the actor to a pulp.

If you absolutely must show a live actor and a miniature in the same frame, your best technique is the perspective shot. Perspective shots can not be done with animated models, but they *can* work with hand puppets (see my article "Hand Puppet Monsters" in CINEMAGIC #26). Set up your miniature—whether a puppet, a spaceship, or even a still photo pasted to a sheet of glass—in the foreground of the shot, with the actor in the background. If your camera lens is wide enough to keep both in focus, the miniature will appear to tower over the person.

There are countless other ways of creating good special effects for an amateur film, of course, and you can find them all in a magazine called CINEMAGIC. My purpose is not to provide an exhaustive list, but to convince you to use the *simplest* effects wherever you can, and keep all effects to a minimum. One effects shot, beautifully executed, is worth more than a whole reel of shots that do not quite come off. And similarly a simple story, well told, is worth more than a botched epic—like mine. Set your sights high, but set them realistically, and you will create a film you can always be proud of.



The Cat People, a low-budget classic, used mood lighting to create an eerie atmosphere. Director Jacques Tourneur used virtually no special effects. The film frightens through the power of suggestion.

Bright Eyes

Hypnotize your friends and audiences with glowing eyes that flicker as you speak.

By CHRIS E. STEVENS

Here's a simple and inexpensive project that you can whip out in an evening. It's so basic that this description of it is very brief. Fortunately for your budget, the parts list is also brief. However, I feel that you will find many uses for this little project.

In CINEMAGIC #24, there was an article about eyes that glowed using little bulbs for the "eyeballs." I thought that it might be nice to add the extra touch of having the bulbs change brightness with a voice as the control.

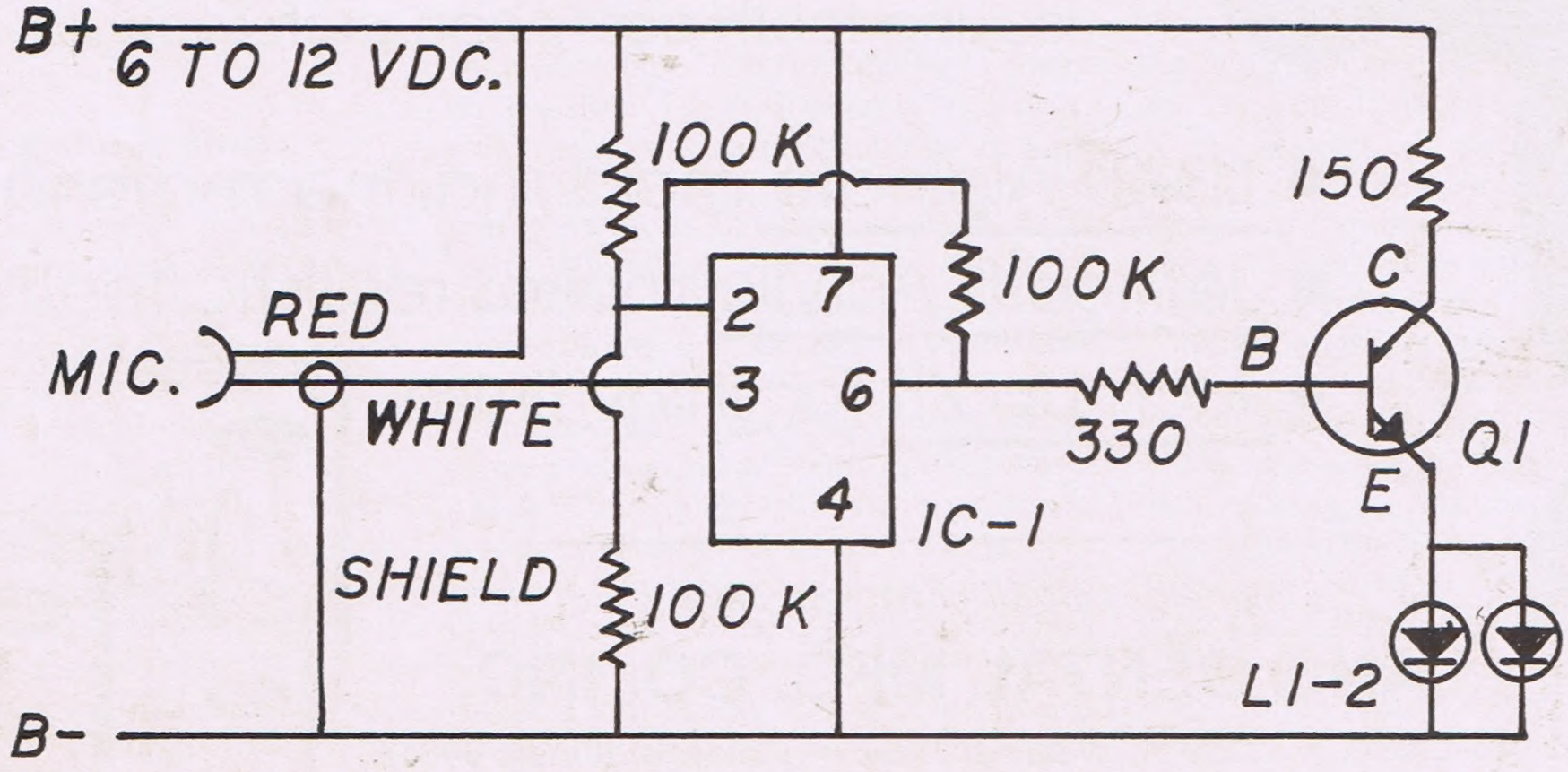
Basically, the project consists of an electret condenser type of microphone with wire leads, an op-amp as an audio amplifier, and a transistor as a lamp driver and amplifier for the "modulation" of the lamps. The lamps can either be LED's or small, low-voltage, low-current bulbs which will fluctuate in intensity as you speak into the microphone. Although the bulbs won't appear very bright during the daytime, the effect should be quite noticable in the dark, adding an eerie aura to your creature's eyes.

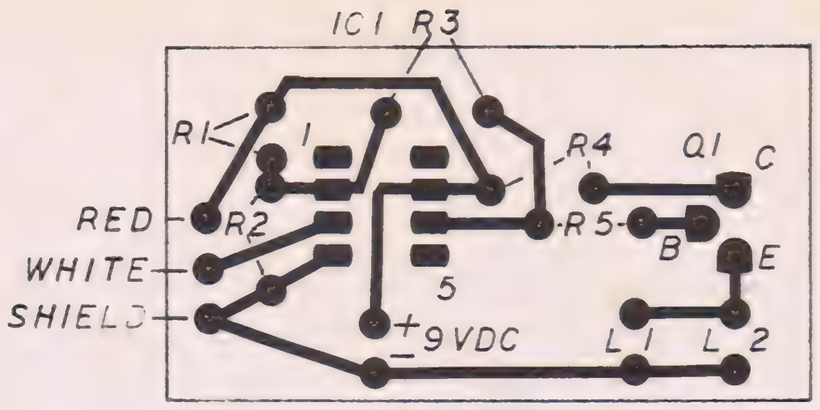
The microphone and all of the parts are available at your local *Radio Shack* store, and be sure that you get the type of microphone that's the "element only." There's no need to get the more expensive unit, as you'd have to tear it up for this project anyway. It's *Radio Shack* part #270-092A, "electret condenser mike element." There are three wires from the

PHOTO: JOHN CLAYTON

Place your finished flickering eyes project inside a demon mask and people will tremble when you speak.

The schematic for the flickering eyes circuit.





The parts placement diagram.

element. One is red, and the other two are paired together as a shielded cable. It is essential that you connect these correctly, so follow the wiring diagram closely.

R-1 and R-2 are 22 K-ohm resistors, R-3 is 100 K-ohms, R-4 is 150 ohms and R-5 is 470 ohms. All of the resistors are ¼ watt. The IC required for this project is a 741 op-amp and Q-1 is a 2N2222 variety NPN transistor. The collector, base and emitter connections are marked. L-1, 2 can either be LED's or small lightbulbs rated at about three volts or so. R-4 is a current limiting resistor, so the lamps won't draw too much current through the transistor.

In the photo, you'll see the LED's mounted directly on the printed circuit board. If you wish, you can put the LED's (or lightbulbs) and the microphone element on long leads so you can conceal the PC board and battery elsewhere. The battery is a standard 9-volt transistor battery with the appropriate wire lead connector. The plus and minus connections are indicated in the drawing of the layout and, if you wish, you can add a SPST switch in series with one of the leads to conserve battery life.

Pins One and Five are indicated on the drawing of the layout for IC-1. The drawing depicts the IC from the *top*, with the little indented circle in the upper left hand corner of the IC. Pin one could also be indicated on the end with a section cut out like a little half moon. Finally, if one or both of your LED's should fail to light up, try reversing them for the correct polarity.

When you have finished building this project you will have two lamps that remain lit and vary in brightness as you speak into the microphone. For the best results, mount the microphone as close to your lips as possible so that you can speak directly into the mike. I kept the mike on the low sensitivity side so that it wouldn't respond to heavy breathing or other outside noises, making it more responsive only to the speaker within the mask that contains the unit.

Since there are no holes to drill, construction should go rapidly. Everything is mounted directly on the top side of the PC board with the circuitry so that you can tape it to the battery or secure the battery to the PC board with a rubber band if you wish. This way, if you use a battery with a metal case, you won't have to worry about it "short-circuiting" to the case of the battery.

Let's Hear From You!

I'd like to hear from those of you that have ideas for projects. If you wish a personal reply, be sure to include a self-addressed, stamped envelope. Who knows? Maybe one of your ideas will appear in the next issue of CINEMAGIC. When enclosing your letter and envelope, be sure to fold *both* smaller than your mailing envelope, and tuck it deep into the bottom. This will help protect your letter from "Darth Shredder," our electric "top-lopping" letter opener. Please address your letters to me in care of CINEMAGIC, and allow some time for the mail to be forwarded.

CM

All items are available at your local *Radio Shack* store, unless otherwise indicated. The catalog numbers have been provided for your convenience.

Microphone	Electret condenser type W/leads	*# 270-092A*
R1, 2	22 K-ohm, ¼ watt	*271-1339*
R3	100 K-ohm ¼ watt	*271-1347*
R4	150 ohm ¼ watt	*271-1312*
R5	470 ohm ¼ watt	*271-1317*
IC-1	741 op-amp	*276-007*
Q-1	NPN transistor (2N2222 type)	*276-1617*
L1, 2	LED's of your choice, size or color, or two low-voltage/current lamps. (Not to exceed 20 ma. each.)	
B-1	9-volt transistor battery, and clip.	

Miscellaneous: Printed circuit board, etchant, dry transfer stencils.

Easy

EFFECTS

Gauging the Action

Build these two "E-Z" surface gauges and help bring your stop-motion puppets to life!

By JACK IMES, Jr.

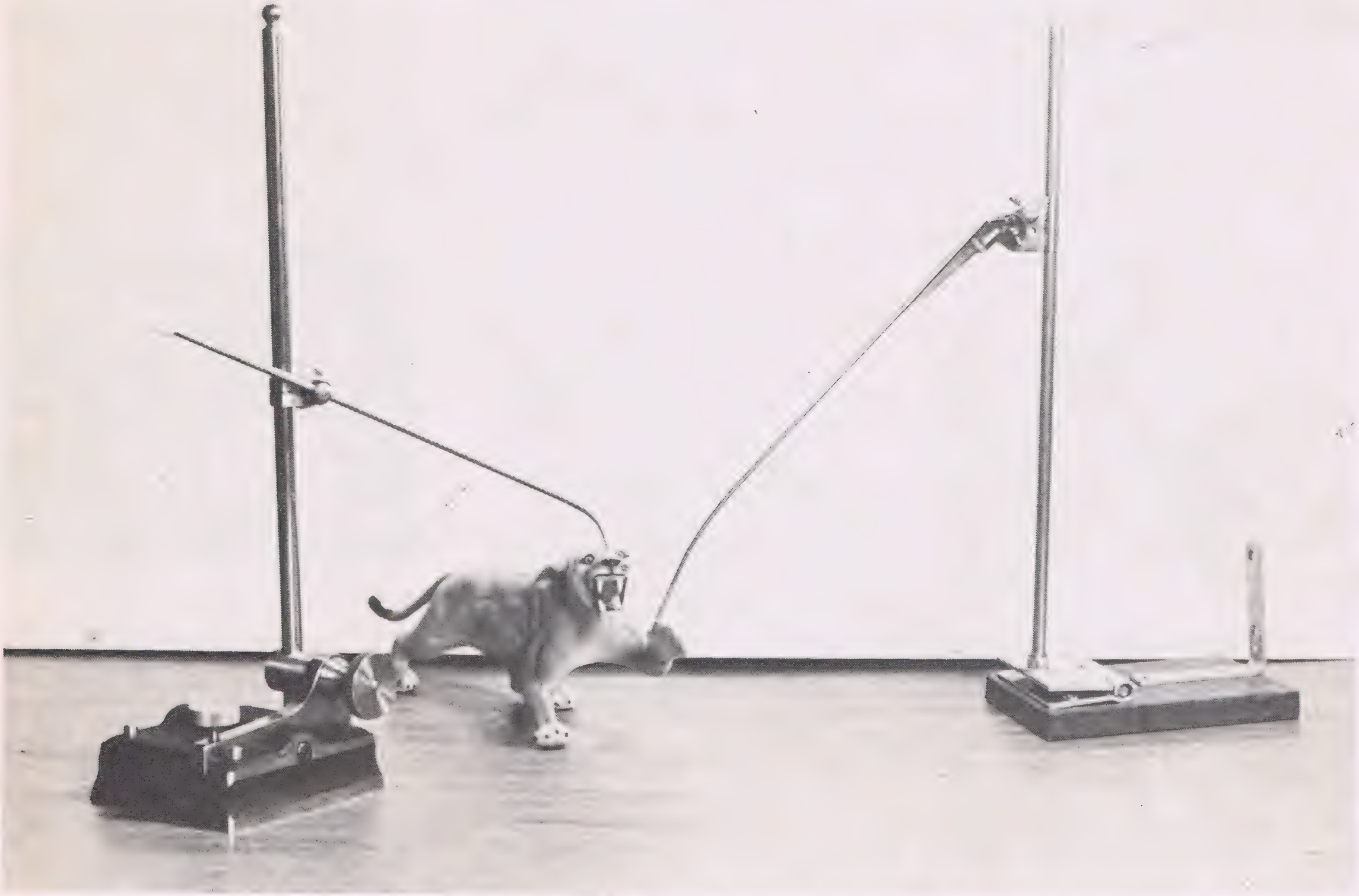


PHOTO: JACK IMES, JR.

Two types of surface gauges. The gauge on the left is a ''professional'' gauge. The gauge on the right is the gauge that you can built by following the directions in this article. Often, as shown, two or more gauges are needed to keep track of the movements of different parts of a single stop-motion puppet.

Smooth stop-motion puppet animation requires great concentration by the animator to keep track of which part of the puppet is moving in which direction. If a creature puppet has a head, hands, arms, legs, feet, tail and snapping jaws, that's seven different movable parts to remember. Imagine the instant nightmare of shooting hundreds of stop-action frames, then suddenly forgetting if the dinosaur's tail was going up or down, left or right? Well, there's a handy device to help you keep track of what is going where, the *surface gauge.*

Animators use this machinist's tool to provide a "reference point" by positioning the metal tip on a portion of the model being animated, such as the head or an arm. Prior to the next exposure the gauge arm is pivoted out of the shot. After the exposure the gauge arm is pivoted back and shows the animator the reference point. This reference point remains fixed while the animator positions the puppet for the next frame. This allows the animator to accurately make precise incremental movements. The gauge can be used in many different ways and each animator will have an individual approach.

The photo shows a professional gauge (on the left) with the standard long arm and upright rod. Such gauges are expensive, about $60 or more, depending on the unit's quality and size. In this article you'll learn how to make two simple gauges that are cheap, yet effective and can get you started in using gauges for more precise and fluid animation. The low cost of these homemade tools is a plus since many times an animator may use two or three gauges to keep track of one puppet's actions.

Back to Basics

The gauge base is designed to permit the gauge rod to pivot. This will allow the gauge arm to be swung out of the shot when the puppet is filmed.

A suitable base is a block of plywood, at least one-half inch thick to give weight to keep the base from sliding. The pivot part of the base is a large door hinge. A

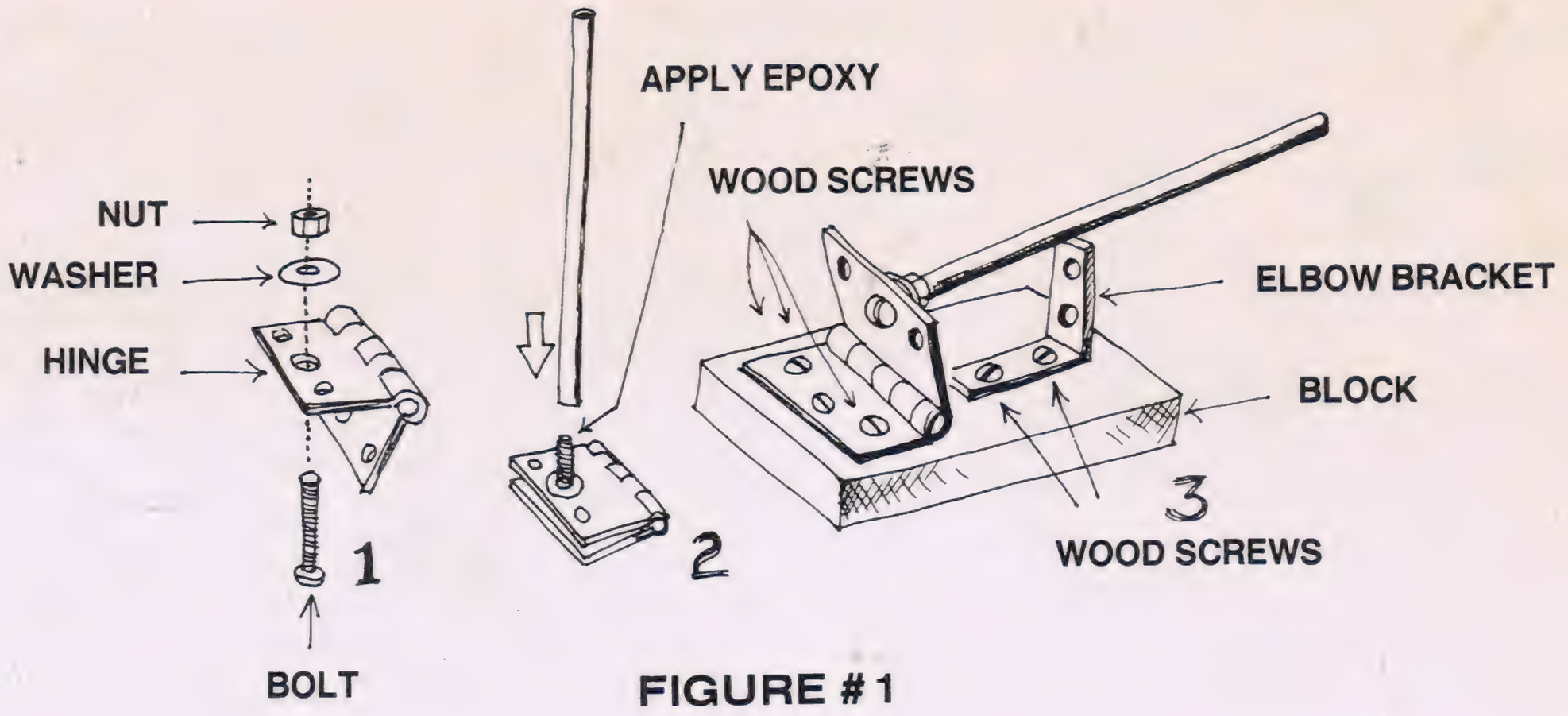


FIGURE #1

FIGURE #2

PHOTO: JACK IMES, JR.

long carriage bolt is inserted into the middle hole and secured with a washer and nut. Make sure you insert the bolt into the hinge holes from the counter-sunk side to permit the hinge to fold flat.

A brass tube (available at any hobby store) will serve as the upright rod to support the gauge arm. The tube is slightly larger than the bolt and slips over it quite easily. To anchor the tube in permanent position a quick setting epoxy glue is used on the bolt threads. I use the "Five-Minute" brand epoxy which is easily mixed from two components supplied in a squeeze tube. Use plenty of epoxy on the bolt and push the brass tube down onto the bolt slowly; some epoxy will ooze around the washer, but this will help give a solid grip after the epoxy sets. Wait at least the full five minutes—ten minutes will give you a stronger bond.

The hinge is placed at one end of the block. Trace the holes for later drilling of the block. Place an elbow bracket at the other end, tilt back the hinge to settle the tube onto the top of the bracket. Trace the elbow bracket holes onto the base. Remove the hinge and bracket and drill small starter holes for the wood screws

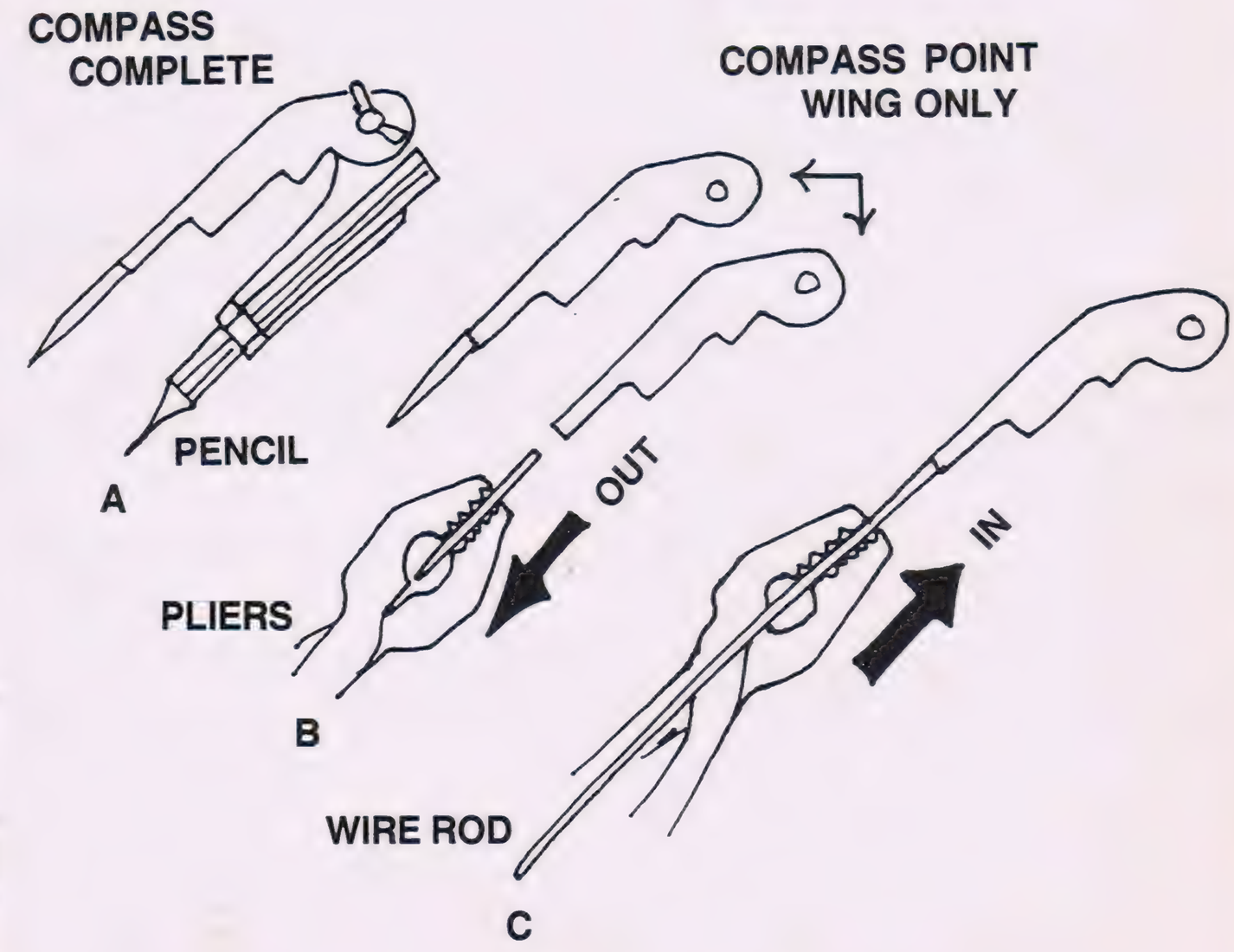


FIGURE #3

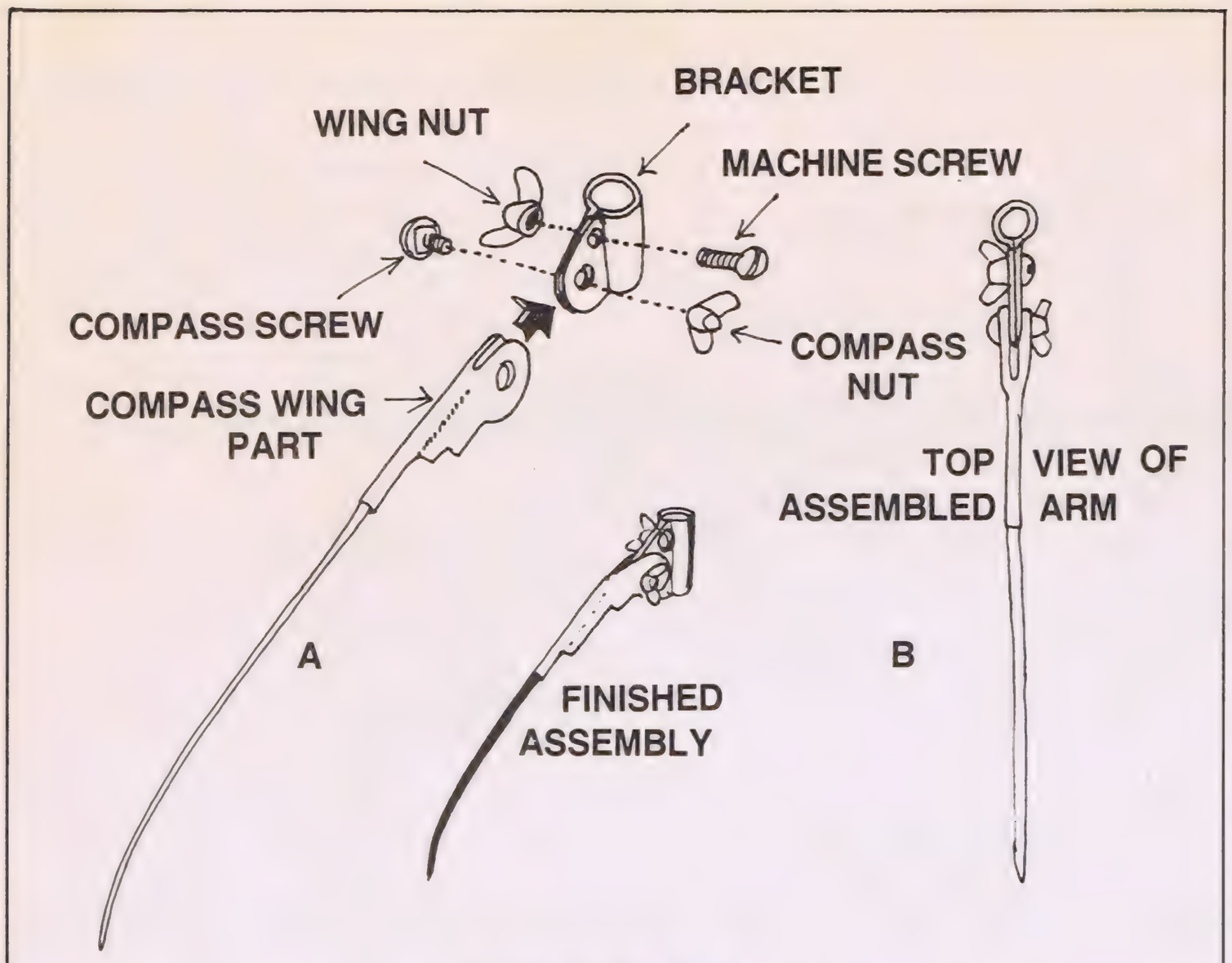


FIGURE #4

that will be used to anchor each part.

The assembly steps and finished base are shown in Figure 1.

Holding the Arm

A simple bracket to hold the gauge arm can be made by tracing the pattern shown in Figure 2 onto a piece of thin brass, tin, or aluminum. The drawing is actual size for use on a quarter-inch tube gauge. The circles are to be drilled out for inserting machine screws. The metal pattern can be easily cut with a pair of old scissors, but tin snips will do a safer and easier job. Use a file of emery paper to dull the sharp edges after cutting. The finished pattern is then folded at the lines marked "F" around the tube, as seen in the A-B-C sequence. The pattern line marked "C" is the centerline to aid you in folding the bracket around the tube. The finished folded bracket will have all the left and right holes properly aligned to allow the insertion of the machine screws. To mount the bracket, slip the bracket onto the tube and insert a screw into the hole nearest the tube. A wingnut will give an adjustable tension to permit the bracket to be moved up and down the tube length.

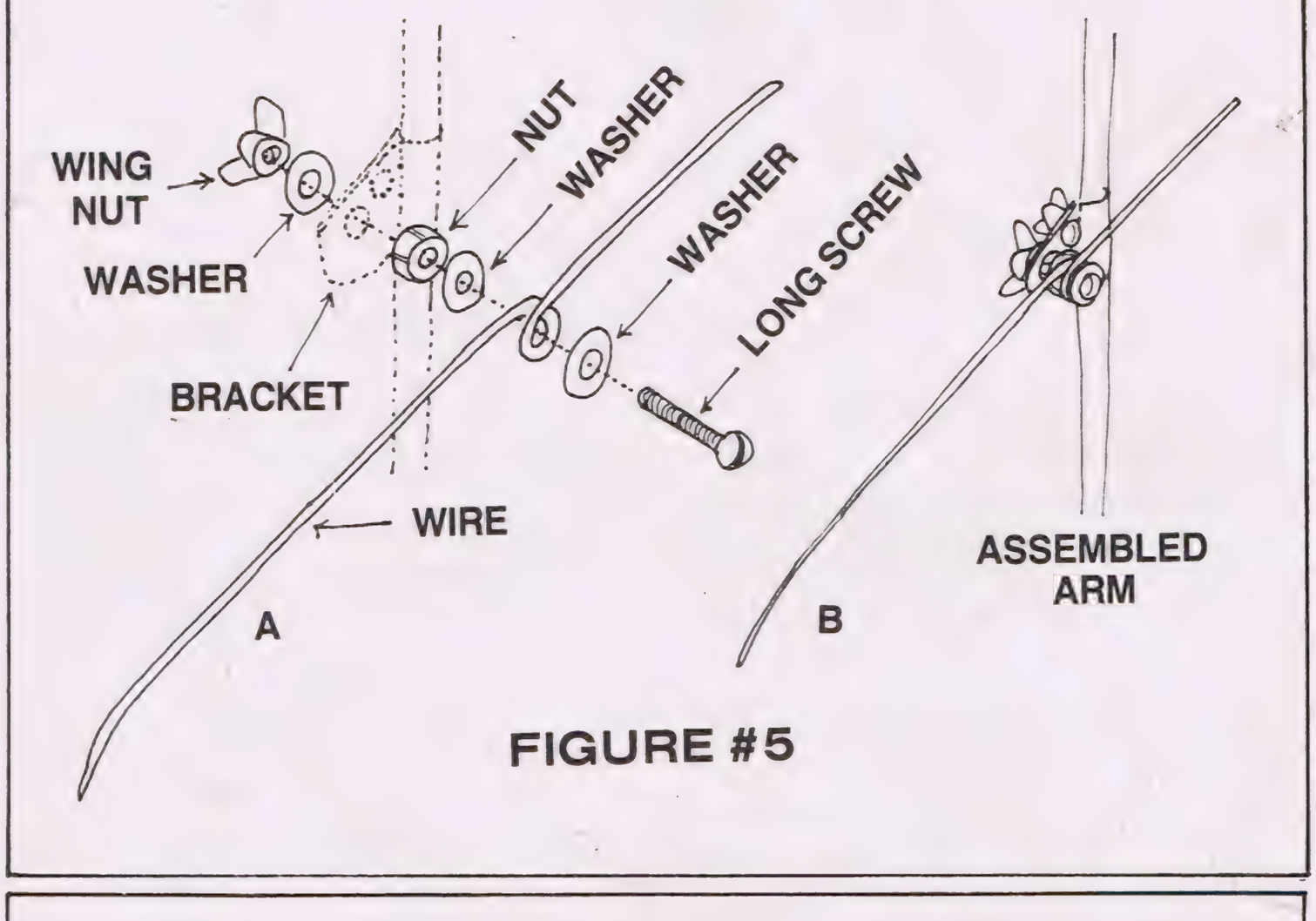


FIGURE #5

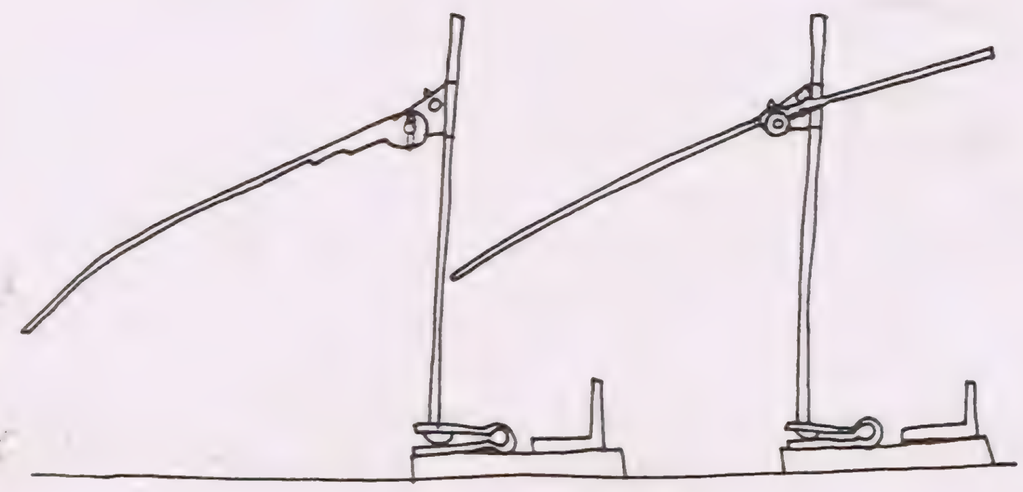


FIGURE #6

Gauging the Action

The adjustable arm is nothing more than a long thin rod attached to the bracket mounted on the tube. The following describes two different ways to make an arm (both methods are easy when you have the materials). Figure 3A shows a carpenter-type pencil compass/scriber.* This compass costs under a dollar and has a wingnut adjustment and steel point. Don't use the ball-bearing type school compass or the bow-wing divider compass.

Figure 3B shows the disassembled compass, and only the steel tip section is used to make the gauge. Pull out the steel tip with a pair of pliers and insert an eight-inch length of thin brass rod of the same diameter. The end of the rod should be slightly curved to make it more useful later; the curve should face down.

The compass "wing" with the long rod is now mounted onto the bracket with the original wingnut and screw. Figures 4A and 4B show how this is done. Don't tighten the screws until the bracket is on the pole. Adjusting the wingnuts permits the gauge arm and bracket to be moved and then locked position.

The second method of making the gauge arm is shown in Figures 5A and 5B. This method employs a length of stiff wire cut from a coat hanger and bent around a machine screw to form a loop. A screw is inserted through the loop and is then attached to the tube bracket with a wingnut. Washers help hold the wire loop tightly and an ordinary nut will anchor the wire on the screw. By changing the wingnut tension the arm can be moved and then locked in place.

Figure 6 shows how the two surface gauges look when completed. Figure 7 shows a gauge in use, 7A shows the gauge "in" marking a point, and 7B shows the gauge "out" of the shot. *Always remember to swing the gauge arm out of the shot before shooting a frame.* The hinged arm permits the animator to clear the gauge arm from the shot without moving the base. When the gauge arm is returned to the puppet, the "reference point" of the arm tip will show the animator the puppet's position so he can calibrate the next incremental movement precisely and achieve more fluid animation.

Many animators use gauges with curved tips on the gauge arm. By turning the curved tip in the direction of the movement being animated, the animator can keep track of which direction he's moving the puppet.

These two simple gauges are very easy and inexpensive to build and will improve the quality of your animation tremendously. All professional animators use a gauge. By using one yourself, you'll become that much more "professional." These gauges will help you bring your puppets—and your imagination—to life on the silver screen. CM

Materials

12" brass tube (hobby store)
3" door hinge (hardware store)
2½" elbow bracket
5" x 3½" x ½" plywood block
2" carriage bolt (with nut & washer)
½" machine screw (with nut, washer, wingnut)
3" x 1" thin sheet metal (hobby store)
five wood screws, ½"
coat hanger
1" machine screw, (with 2 nuts and 1 wingnut)
two flat washers, ⅜" diameter
miscellaneous: pliers, tin snips, drill with ⅛" bit, blade screwdriver, emery paper or file, needle-nose pliers, epoxy glue.

*Unit is easily found at hardware or office supply stores, made by General Hardware Mfg. Co. Inc., New York, NY 10013

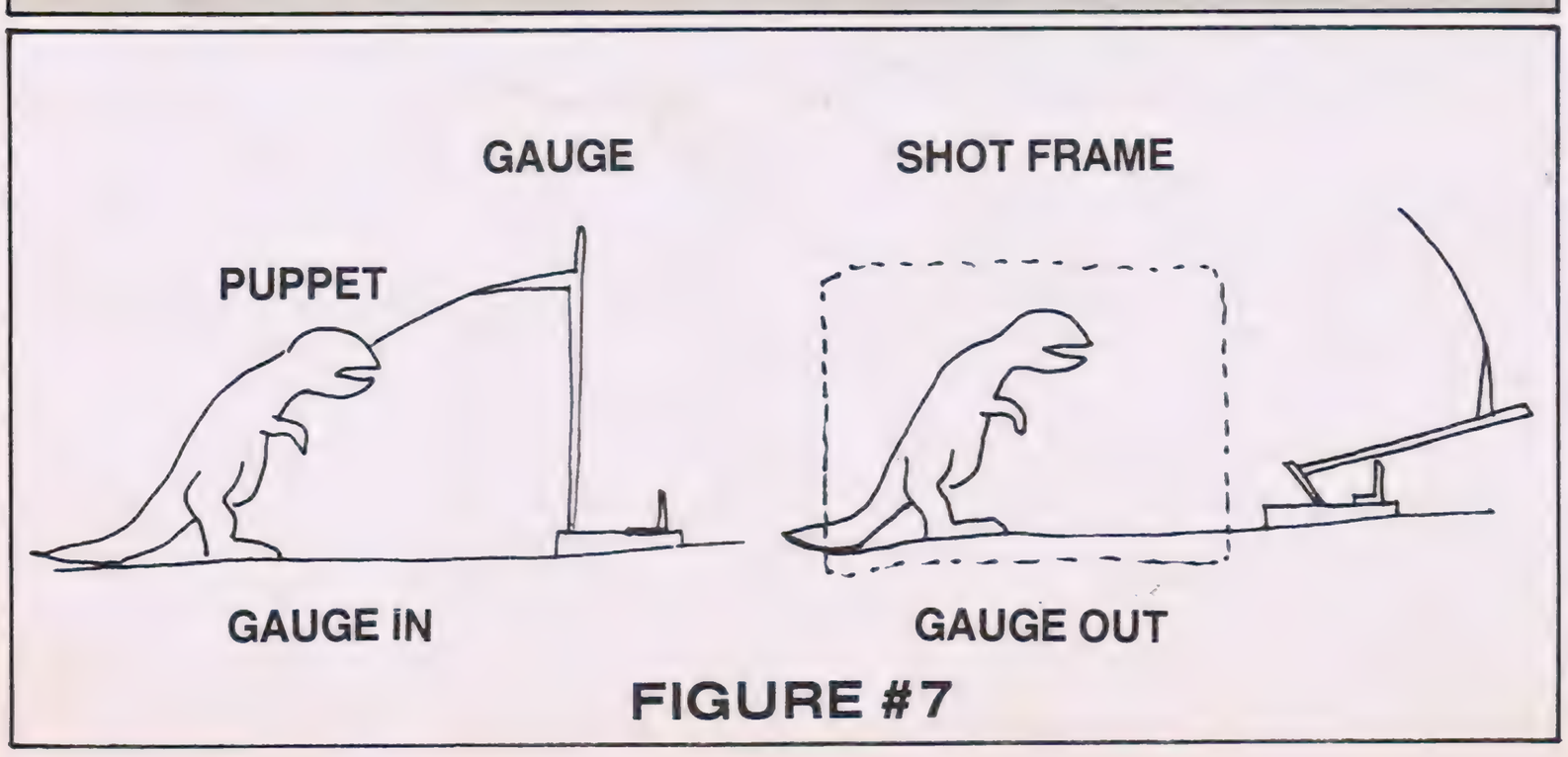


FIGURE #7

BOOKS

REVIEWS

Reel People Collection. **Published by Eastman Kodak Co., Motion Picture and Audio-Visual Markets Division, Rochester, N.Y. 125 pages with 188 black-and-white and color illustrations. $10.00.**

This attractive, heavily illustrated two-color softcover volume is a compilation of the first 14 issues of *Film Notes for Reel People*, a popular Kodak publication devoted to motion picture film handling, projection techniques, and theater operation. These previously published, but now out-of-print articles, cover such topics as good projection practices, showmanship, troubleshooting, light sources, platter systems and much more.

The *Film Notes for Reel People* periodical has been well received by projectionists, theater owners and managers, film exchange personnel, and manufacturers and retailers of theater equipment and supplies. To answer continuing requests for back issues, Kodak published this 125-page *Reel People Collection.*

Each article in *Reel People Collection* is dedicated to a particular subject with in-depth, up-to-date information accompanied by photographs and illustrations. The book contains 188 color and black-and-white illustrations in an 8 ½ x 11-inch format.

The articles on projection techniques describe various professional projection equipment, advise projectionists how to focus projectors to achieve a clear, sharp screen image, how to set correct motion picture sound levels, how to properly establish screen luminance, how to correctly rewind and handle film and more. There is even a helpful projectionist's troubleshooting chart listing the common problems, probable causes and recommended remedies.

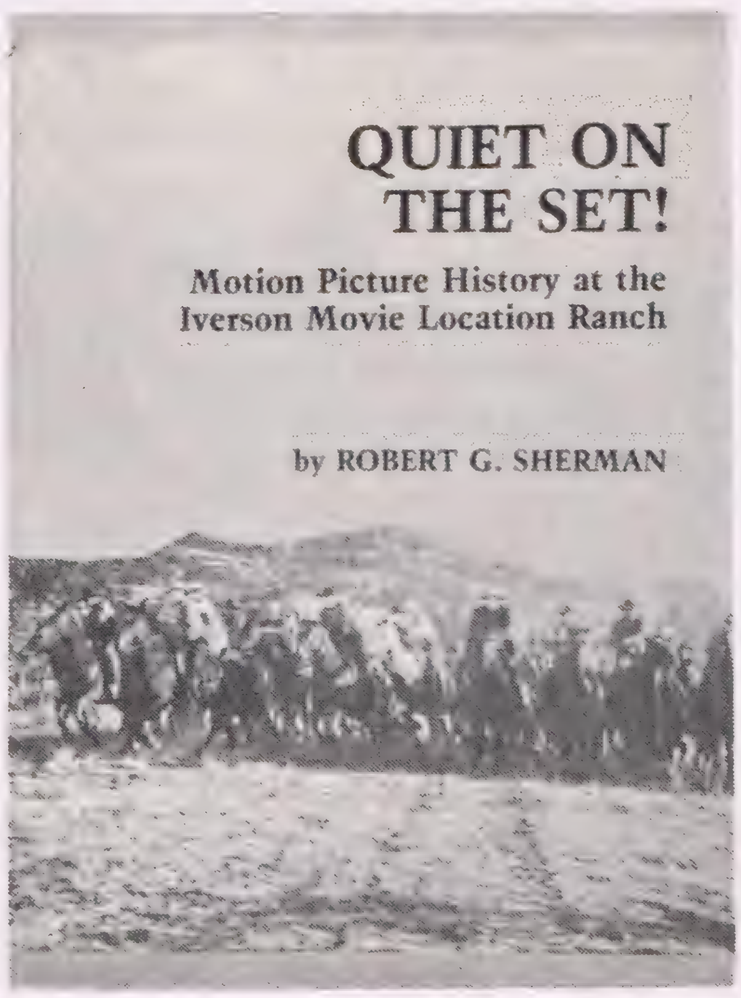
In addition to topics covering motion picture projection, the book describes ways theater owners and managers can optimize their patrons' comfort by providing adequate parking facilities, easily understood and properly illuminated marquees, as well as well-maintained lobbies, rest rooms, concession stands and auditoriums.

The importance of maintaining cleanliness in the projection room is also discussed. Articles explain the proper procedures for cleaning film, and techniques for proper ventilation when using chemicals.

There is even a "Legendary Lexicon of Projection," a comprehensive, often humorous explication of the most widely used terms in the projection industry. In addition, the book contains a wealth of facts and trivia regarding the motion picture industry, such as Oscar winners, top box office films and other data.

"Reel People Collection" (publication H-50) is available from dealers in Kodak audiovisual and motion picture products or it can be ordered directly from Eastman Kodak Company, Department 454, 343 State Street, Rochester, NY 14650. When ordering from Kodak, include the per-copy price of $10 plus $2.95 per order for postage and handling.

PUBLISHER'S ANNOUNCEMENTS



Quiet on the Set!: Motion Picture History at the Iverson Movie Location Ranch. **By Robert G. Sherman. Sherway Publishing Company, Chatsworth, CA. 8" x 10" pages. 78 photos. Softcover. $14.95**

The first inside look at the history of motion picture and TV location filming at the famed Iverson Location Ranch in Chatsworth, California, *Quiet On The Set!* by Robert G. Sherman spans 70 years and the making of 2,500 movies—including some of the world's greatest.

Its rare photos of epic films being made and their stars are as fascinating as the unfolding saga of how Augusta Iverson crossed the seas from her native Sweden and single-handedly homesteaded the rocky, treacherous wilderness that was to become the Iverson Ranch.

In 1912, location scouts dispatched by Cecil B. DeMille and other film pioneers discovered the breathtaking beauty of the vast, sprawling ranch with its startling rock formations. It was *perfect* for location filming! Would the Iversons let them use the ranch to make movies? August Iverson said yes—for $5 a day. Thus a whole new enterprise was born: The Iverson Motion Picture Location Ranch.

Filmmaking there flourished under the creative hand of Joe Iverson, the family's youngest son. Joe not only rented sites to the studios but began to build movie sets, streets, and eventually, whole towns on the advice of his mentors D.W. Griffith, John Ford, and Thomas Ince. The ranch bustled with film crews, actors, and extras as movies were shot on every available set—films set in Africa, Egypt, the Orient, and every state in the union as well as in outer space. Recalls one cameraman, "The Iverson Ranch could be anywhere a director wanted it to be—with a little landscape makeup."

Here such screen triumphs as *The Grapes of Wrath, Ben Hur, High Noon, The Treasure of Sierra Madre, Stagecoach, The Squaw Man, Beau Geste, Camille, The Good Earth,* and *God is My Co-Pilot* were made. Also filmed at the ranch were more than 1,000 popular "B" westerns, notably those starring Gene Autry and Roy Rogers. "I made parts of my first movie and parts of my last move at the Iverson Ranch," Roy Rogers recalls, "plus parts of most of the movies in between."

Other stars who performed for the cameras at the ranch included Charlie Chaplin, Bette Davis, Humphrey Bogart, Olivia DeHaviland, John Wayne, Greer Garson, James Cagney, Shirley Temple, Henry Fonda, Spencer Tracy, Judy Garland, Gary Cooper, Errol Flynn, and David Niven.

The Iverson Ranch later became a popular TV location site as well. Among the segments filmed there were those for *Playhouse 90, Lassie, Bonanza, Gunsmoke, Route 66, Perry Mason, Wyatt Earp, G.E. Theater, The Real McCoys, Sky King, The Virginian, Big Valley, Bat Masterson, Have Gun—Will Travel, Zorro, The Rifleman,* and *Death Valley Days.*

At the heart of this fascinating book is the remarkable story of Joe Iverson, who helped to launch the Iverson Location Ranch in 1912, actively oversaw it for its move than 70 years—and still does today. At 87, Joe laughs, "I ain't done yet!" And neither is the legendary motion picture and television edifice he helped to create.

Quiet On The Set! ($14.95 ppd.) can be ordered from Sherway Publishing Co., 20371 Prairie St., Suite 7, Chatsworth, CA 91311. CM

Filmmakers' FORUM

A regular department devoted to readers' comments about filmmaking, their problems and solutions.

Rochester Horror Club

. . . Are there any CINEMAGIC readers in the Rochester, New York area, who are interested in making a special horror movie and/or horror series? If the answer is yes, then you'll want to join my special filmmaking club: Horror Fans and Movie Makers.

The call is on, for anyone interested in doing one or more of the following: acting, script-writing, music/sound effects, special effects, makeup effects, and other areas of filmmaking. Let's get together, correspond, work, have fun, and start a lasting friendship and profitable future. Contact me at the address below:

Club of Horror Fans
and Movie Makers
c/o Movie-Louie
604 Smith St.
Rochester, NY 14608

Phoenix Philmmakers

. . . I have organized a group of filmmakers in the Phoenix area, and we are now planing a film to enter in film festivals. Our association is in need of new members who live in our area. If you are interested, please contact us at the following address:

Kevin Hedgepeth
c/o Odyssey Productions
4231 N. 31st Ave.
Phoenix, AZ 85017

Portland Videographer

. . . I am a videographer from Portland, Oregon. I started out working with Super-8, but four years ago I found video and have stuck with it ever since.

I would like to know where to get realistic looking eyes for a life-sized monster.

I would like to make contact with anyone in the Portland area who would like to discuss projects or collaborate on a video film.

Kyle Bryant
12360 S.W. Edgewood
Portland, OR 97225

See John Dods' "Supply Sources" in CINEMAGIC #27. It lists four sources for artificial eyes and taxidermy supplies. Also listed are sources for art and sculpture supplies, casting and mold-making materials, makeup, foam rubber and liquid latex, and general supplies and materials.

FX Artists Wanted

. . . Tired of trying to make a complete special effects epic and falling short of the mark? If you care, then join our club. We plan to get in touch with people who can do isolated effects at their own pace, then combine the work to enter into national competition. If you are interested in our venture please send pictures of your best work and some information on your work in special effects.

Peter Weissenberg
12439 Persimmon Rd.
Upper Marlboro, MD 20772.

A Data Bank For Filmmakers

. . . After personally experiencing the trouble of finding others to do film work with, and noting in Filmmakers' Forum that others shared this problem, I decided to *do* something about it. I would love to create a database of filmmakers, their main interest (i.e. genre) and area of expertise. Once in my data bank, if someone should need their skills, I can punch up the particular trait needed and send the seeker a list of people to contact.

People who are interested in being placed on my data base should send their name, address, genre(s) and area(s) of expertise to the address below. There is *no cost* involved in being placed on the data base.

People who are interested in seeking another filmmaker with certain requirements (i.e. same state, sound man, model builder, etc) should send me their request with the requirements and a SASE. The only cost for this will be for the paper used by the printer and *it will be nominal.* I anticipate that a "normal size" seek should easily cost no more than 50¢ and many will cost less. To anyone whose searches come out abnormaly large (cost over $1), I will send a notice of cost and await verification before sending the results and billing. If a search results in nothing, it will cost nothing. I want this to be a service to budding filmmakers and only make the nominal charge to avoid bankruptcy.

A good search will not be available until an adequate data base is formed. So all you lonely filmmakers out there should write in. I would hope to be in full operation in a month. Remember, all inquiries must include a SASE. The service may also be used for filmmaking pen pals.

Brian K. Kauj.
35 Central Blvd.
Camp Hill, PA 17011

Nice Advice

. . . If you are one of the many amateur filmmakers that have your Super-8 developed through a drugstore, here is something you may want to look out for. If the processing price is advertised in a store window or display, it's a good idea to double-check it with store personnel. Some businesses don't bother keeping the movie film processing prices up-to-date, which may make you end up paying more than you expected to. I, of course, found this out the hard way.

Steve Bydal
2912 Jaffe Rd.
Wilmington, DE 19808

Syncing Silent Super-8

. . . I'm a Cinemagic Subscriber and have one question: What is the best way you have found to sync a silent Super-8 film to a separate soundtrack on tape? I'm attempting to use cassette tape instead of reel-to-reel, and would like to know if you know of any way to accomplish this. Thanks.

David Kilcy

. . . Syncing cassette to a projector is tricky at best. With some luck you can roughly sync musical backgrounds to help establish mood. For dialog and effects you will have to go to sound striping on the film.

To synch a cassette, most people use a visual marker on the film leader as a cue to start the cassette. The trick is to have enough film leader go through the projector after your flash frame (or whatever) so that the leader on the cassette can wind through. Even so, you will find that neither the cassette or the projector will run at exactly the same speeds twice, but they can run close enough for loose music cueing. Other alternatives are: if you have a videocassette deck, transfer the silent film to tape and then audio dub a music track on later; or shoot silent, have the film striped and then add music, fx and dialog last—just like they do with all the Kung-fu films! Of course, if you only have access to a silent projector, you will have to make do with general mood music backgrounds. Good luck!

Texas SPFX Artist

. . . I am a well-trained and experienced artist and model-maker who now wishes to enter the filming and special effects world. I have worked for myself and for rock bands and know a little about film production. In fact, I am now studying film production at San Antonio College. Anyone or group needing my talents—anywhere in the U.S.—please contact me.

John Diaz
5629 Parkcrest
San Antonio, TX 78239

Film Scores Composed

. . . I am a beginning filmmaker who works with Super-8 films. As a filmmaker, I realize that a movie is just not complete without a soundtrack. Right? We can all lift excerpts from movie soundtracks, but that's just a little illegal! So, I decided to put my eight years of music experience to work for me. With my Casio 501, together with my computerized synthesizer, piano, and drums I found I was particularly good at composing themes for my own movies.

If anyone would like to give me a shot at composing an entire score for their movies, drop me a line at the address below.

Andrew Patterson
Route 8, Box 268
Tucson, AZ 85730

A Direct Line

. . . Readers who have access to CompuServe can contact CINEMAGIC'S Editor David Hutchison directly through Easyplex E-Mail. His User I.D. is 71036,1477. He can also be reached through M.C.I. Mail #136-7254. CM

Address all correspondence to: CINEMAGIC—Filmmakers' Forum, c/o Starlog Press, Inc., 475 Park Ave. So., New York, NY 10016.

Due to the enormous volume of mail received, the editor regrets individual replies are impossible.

Eight Legs Are Better Than Two

A behind-the-scenes glimpse at the building of an odd-shaped armature for a stop-motion spider-monster.

By KEN BRILLIANT

Fantasy creatures and their stop-motion armatures come in all shapes and sizes, and a special-effects artist has to be versatile enough to handle any assignment. I was recently contracted to build an armature for a creature in an independent horror movie. This was not a traditional dinosaur or cyclops armature, mind you. The creature in the film was a very weird, eight-legged, bulb-headed spider-monster.

Working from a front and side view drawing, I designed the metal skeleton. While designing an armature, it's important to keep in mind what the model must do. Don't over design it. If you don't need the full range of ball joint movement in a certain place, then don't bother putting ball joints in those places. Try to keep movement simple, so you can use a wire or hinge joint. Ball joints are difficult to make and, often aren't needed.

The creature described in the script had eight legs, with five joints in each leg. It wasn't necessary to have a ball joint in each section of the model's leg, so I used a hinge joint. The hinge joints I make consist of sandwiched metal plates separated by nylon washers. (See the Stop-Motion Studio section in CINEMAGIC #24.) This type of joint is easy to construct and was all that was needed for most of the joints in the leg. The only joints requiring more sophisticated design were the points at which the legs connected to the body. These joints needed up/down, side-to-side and circular movement, so some type of ball joints had to be used at these points.

For these areas of extra movement, I used what's commonly called a collar joint. These were machined by John Cosentino at an earlier date and I just reworked them to fit this particular armature. Collar joints are excellent because they allow free movement in all directions. They are also practically impossible to make on a common drill press and require a professional lathe to machine. These joints were held in place in an aluminum body block by set screws. This is a technique in which holes are drilled and tapped in the aluminum and screws are put into the tapped holes and tightened onto a rod that is connected to the collar joint. I used 5/16-inch stainless steel ball bearings (Small Parts type 316) in the collar joints and silver-soldered them onto the connecting rods.

Designing the tie-downs for this armature became a temporary problem because the tips of the creature's legs came practically to points. So, I used a 6-32-inch tap on a ¼-inch rod. I then bolted the rod onto the end leg plates with the tapped hole pointing down, thus creating a tie-down.

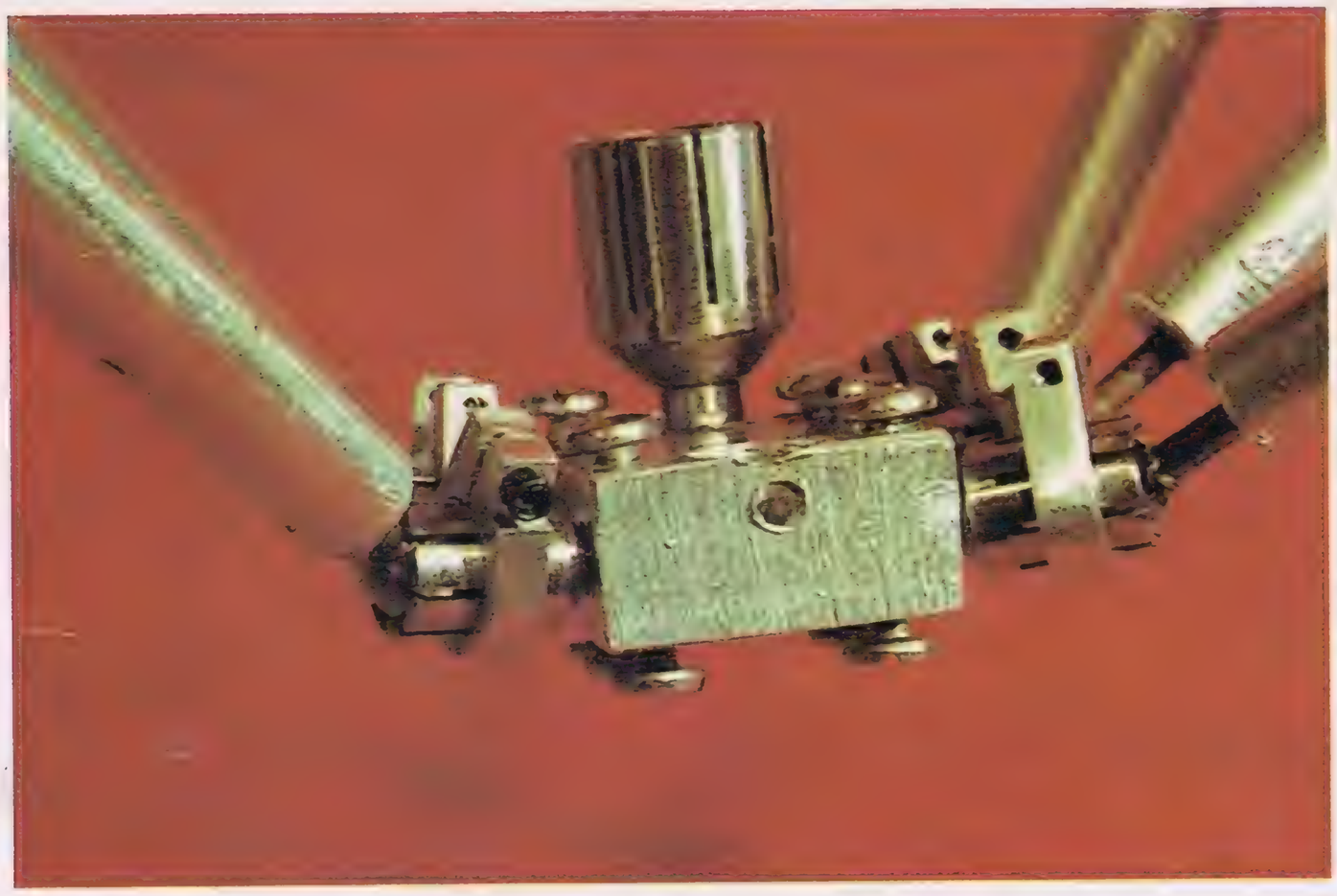
The understructure of the monster's head created another problem because it was very large and bulbous. Fashioning the head out of wood or metal was out of the question because it would have made the model too top heavy. I ended up making a fiberglass skull for the head. To do this, I first sculpted the basic shape of the head in oil-base clay and then I made a two-piece Ultracal mold of the clay sculpture. (I found Ultracal to be infinitely better than Hydrocal. It's easier to work with and dries as hard as cement!)

The interior of the mold was first shellacked and then greased with wax. This was done to prevent the polyester resin from adhering to the mold. A ½-ounce fiberglass cloth (from Iasco Co., 40¢ per yd.) was cut into one-inch wide strips. These strips were dunked into a small jar of resin that had a few drops of resin hardener in it, and then layed inside the mold and made to conform to the shape of the interior. Six layers were eventually built up before the mold was opened. The newly formed fiberglass skull was cleaned with a file, drilled and attached to the rest of the body.

I worked with the resin outside in the open air wearing a mask, goggles, latex gloves and a large fan blowing over the whole set-up. I suggest that you do the same. If you work inside, fiberglass will stink up your house before you can say "ball bearings!" It also burns the skin on contact and is very hazardous to your health. If you respect its properties and take the proper precautions, then you shouldn't have any problems working with fiberglass.

All metal materials, taps and soldering materials mentioned in this article can be purchased from Small Parts Inc., 6901 N.E. Third Avenue, P.O. Box 381736 Miami, Florida 33138.

CM



A closeup of the armature midsection showing the arrangement of the collar joints.

A detailed view of one of the machined collar joints.

Full view of the eight-legged spider armature with the bulbous fiberglass skull at the center.

The Remarkable Mr. Harryhausen

A captivating, close-up look at the stop-motion models of cinema's best dimensional animator.

By PAUL MANDELL

Try to imagine what the tapestry of fantasy film images would have been like over the past 35 years had Ray Harryhausen not been born. Consider three decades of nothing but rocketships, oversized marionettes, and bulky Godzilla suits to nourish our sense of wonder. What a gruesome thought.

Ray Harryhausen has consistently put on the screen something that others have imitated but never really achieved—seamless magic. And what magic! Max Ernst surrealism brought to life with astonishing choreography. The goat-legged Cyclops striding down Colossa beach. Pause, snap, shoulders back. The hideous ballet of living skeletons. The furtive Ymir, the towering Talos, the deadpan Siren. A two-headed dog, a four-armed snakewoman, six-armed Kali, the seven-headed Hydra, and a venomous Medusa with a scalpful of hissing rattlers!

These are one man's personal visions. We accept them with delight and awe, because they strike psychological chords within us that are not easily explainable. Often the effect is like a gasp caught in one's throat.

However indefinable, Harryhausen's magic still reigns supreme. The man is a monument to the term "consumate artist." He loves motion and drama. Intriguingly, he is also a well trained actor and performs through his figurines. Shunning high technology, his composites are all hand-stitched. So much transpires before the magic flows from his fingertips: he conceives the story, renders his ideas in pencil and charcoal, sculpts and casts his creatures, stages the live action, and marries it all in a darkened room devoid of computers and robot cameras. It's interesting that twenty-two years later, we screen *Jason*'s skeleton fight and *still* scratch our heads, slack-jawed.

Much of Ray Harryhausen's talent is intuitive. But great magicians are made, not born. At a very young age, he made

PHOTO: COURTESY PAUL MANDELL ARCHIVE

PHOTO: COURTESY MGM/UA

CALIBOS (*CLASH OF THE TITANS*). The half-human, half-animal victim of Zeus' wrath with a singular cloven hoof, Calibos was built around the Trog armature from *Eye of the Tiger*. A smaller figure was created for long shots with Pegasus, because the primary model was not in proportion to the horse. For dialogue closeups, an actor wearing facial appliances was used. Again, it's interesting to watch Harryhausen's ingenuity in cutting from stop motion to live action.

Compare it with Harryhausen's Satyr, sculpted forty years earlier, and note the similarities. It's a tribute to the power of an original idea, one that never ceased to touch the artist's repertoire. With Calibos, it seems as though Ray Harryhausen's career has gone full circle. Hopefully it will veer into a brand new orbit, giving us new screen wonders to marvel at.

PHOTO: COURTESY PAUL MANDELL ARCHIVE

MEDUSA (*CLASH OF THE TITANS*, 1981). Few Harryhausen films can boast a more loathsome apparition than that of snake-haired Medusa writhing down a staircase. A stealthy, atmospheric sequence executed entirely by the master, one he is most proud of. Several months were spent on its animation alone. The sequence was staged to have Medusa slink in and out of shadows, echoing the old Val Lewton thrillers. Structurally the model was his most complex, with twelve snakes constantly in motion. Diana Harryhausen, in helping her husband lay out the armature, counted 331 individual parts from head to tail!

PHOTOS: COURTESY PAUL MANDELL ARCHIVE

PEGASUS (*CLASH OF THE TITANS*). Total contrast to Medusa is the angelic Pegasus model, which incorporated pigeon feathers and duck-down. A small one was built for the flying scenes done bluescreen on a pylon, and a larger one (pictured here) was used for the sequence in which Pegasus escapes from the burning swampy lair. Colored foreground lighting played beautifully off the taxidermy work. Pictured below is Ray with animator Jim Danforth.

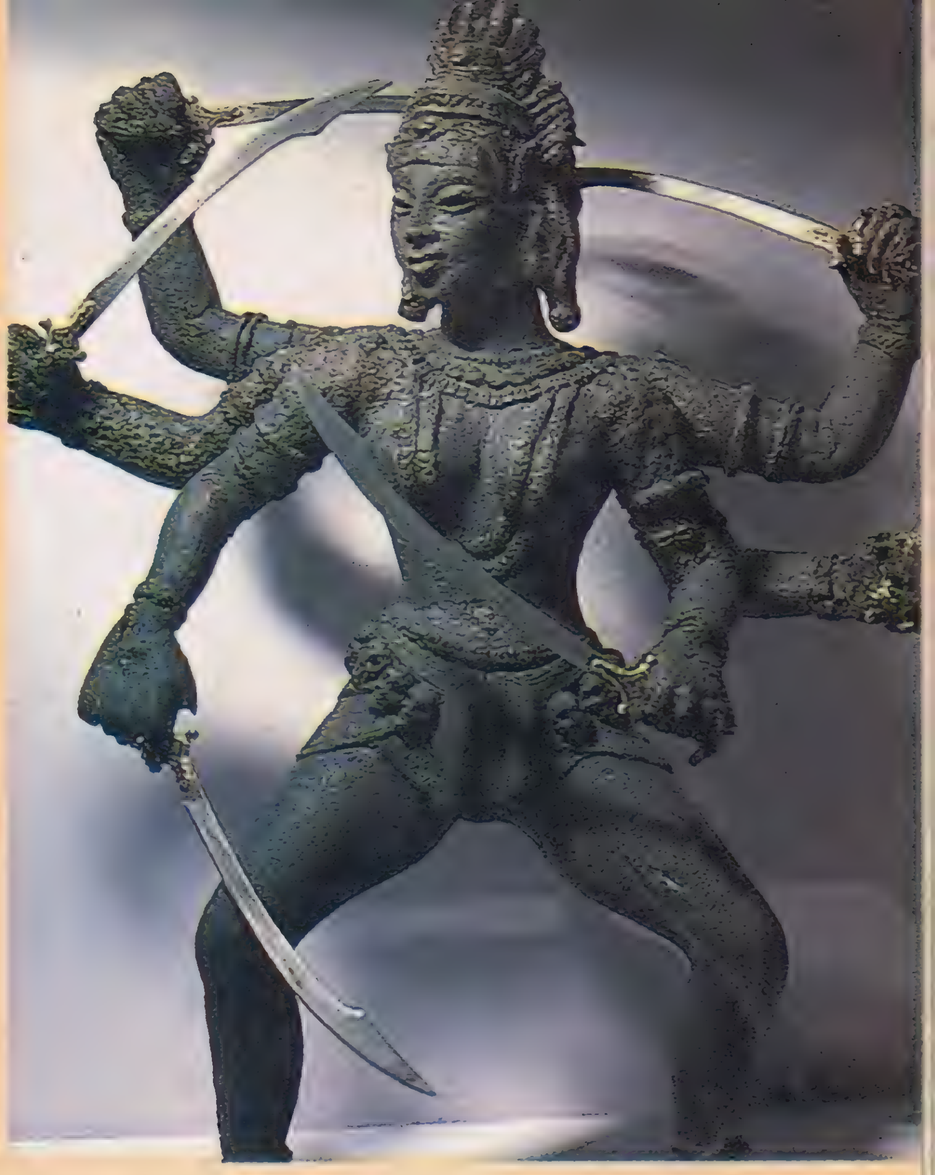
PHOTOS: COURTESY PAUL MANDELL ARCHIVE

THE HOMUNCULUS (*THE GOLDEN VOYAGE OF SINBAD*, 1974). A synthetic creature brought to life by the evil Koura's own blood, the Homonculus was conceived to spy on Sinbad and his friends. Ostensibly a cross between a bat and the Ymir in *20 Million Miles to Earth*, the animation was as smooth as that of old Ymir himself. The striking Harryhausen "three-step and shoulder hunch" was prominent throughout, particularly in the tabletop choreography just prior to its window exit.

a personal commitment to devote himself to his craft. With unflappable discipline, he *developed* his artistic skills. Even his early fairy tales display many of the animated nuances and sculptural features we have come to recognize as "Harryhausenesque." His experiments were voyages of discovery. By the time *Mighty Joe Young* evolved, it had all become second nature to him. Quite an accomplishment at age twenty six!

The works of Gustave Dore and his mentor Willis O'Brien were Harryhausen's key sources of inspiration, but other names came into play: illustrators Aubrey Beardsley, John Martin, and George Bridgman.

"Bridgman was one of the men who had a profound influence on my drawing and sculptural style," Ray reminisced on the patio of his elegant Spanish seaside retreat. "he was the life drawing teacher in the early days of the Art Students League in New York, and had published many books on the



KALI (*THE GOLDEN VOYAGE OF SINBAD*). Nothing is more surreal than seeing a statue brought to life; it's one of Harryhausen's specialities. The East Indian image of Kali (Shiva in some texts) had always fascinated him. Classically, the "dark mother" had four sword-wielding arms; Ray gave her six. Deadpan and deadly, he choreographed her with an Oriental stance and gait. Synching her appendages in stop-motion to the live action was exhausting. Harryhausen spend six weeks completing the sequence.

PHOTOS: COURTESY PAUL MANDELL ARCHIVE

art of drawing the human figure. After the Army, I lived a 'pseudo-Bohemian' life in a cold-water flat on Greene Street in Greenwich Village and enrolled in evening courses at the Art Students League. By that time, Bridgman had long since vanished. Many devotees of modern art consider him old-fashioned, but he certainly knew his anatomy! He had a powerful approach to sculpture and drawing, similar to that of Michaelangelo."

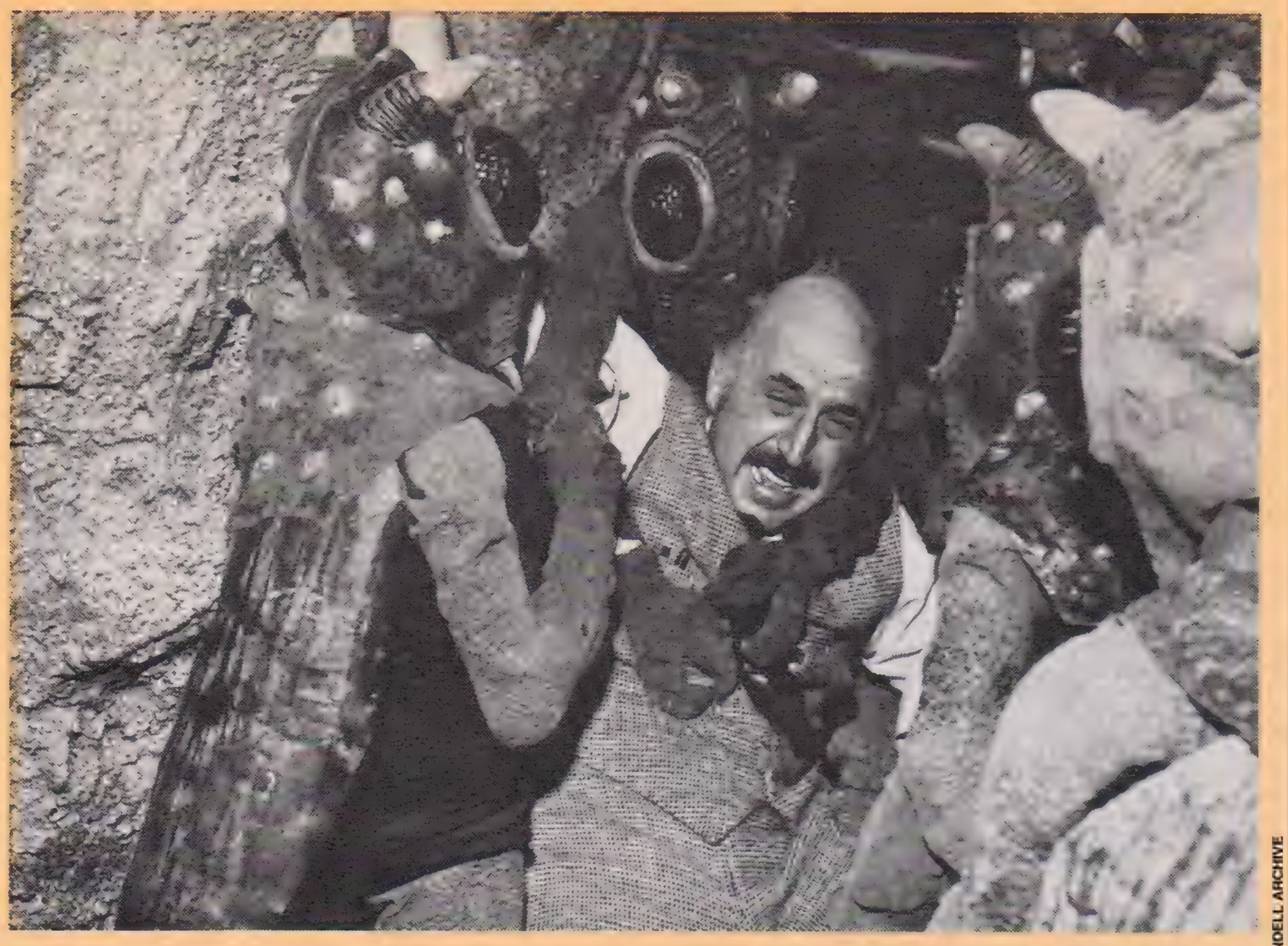
Submitted here for your perusal is a glass menagerie of Ray Harryhausen's macabre masterworks, dramatically lit to flatter their detail and personality. A rare treat stands among them—the artist's first mythological creature, now forty-five years old and intact. Ray's "animals," as he likes to call them, no longer hiss and snarl in his black zoo—they harmlessly pose for our scrutiny, and remind us once again that Mr. Harryhausen is both the Walt Disney and Michaelangelo of dimensional animation.

THE HYDRA (*JASON & THE ARGONAUTS*, 1963). The Hydra monster, one of Ray's most formidable models, was as much a nightmare to animate as it was to look at. Seven serpentine appendages lunging, snapping, and recoiling at different intervals while interacting with the projected image was enough to tax the animator's energies. "One had to have seven computers going in one's head simultaneously." The snake necks used armature parts from the dormant cephalopod tentacles, and one large bolt tied the hideous underbelly down to the stage. Many still wonder where Jason's real sword went in slaying the Hydra. "Let's keep that one to ourselves," Ray smiled.

PHOTOS: COURTESY PAUL MANDELL ARCHIVE

THE BABOON (*SINBAD & THE EYE OF THE TIGER, 1977).* Not since *Mighty Joe Young* did Ray have the opportunity to animate a member of the ape family. With the baboon, he pulled out all stops in making the animal look absolutely real. Its first frantic shot in a cage tricked every audience I've ever witnessed, and the measured simian nuances (particularly during the chess game) was Harryhausen at his best. Columbia execs in the screening room wondered how a baboon was made to behave so well. To keep the hair from shifting during animation, Ray applied frequent coats of hair spray. While today's miracle surgeons can transplant a baboon heart into a human, who but Harryhausen can claim to have put a human soul into a baboon?

THE MINOTON (*EYE OF THE TIGER*). Like Talos in *Jason*, the Minot on typified Ray's sculptural penchant for marrying human musculature with an armored or mechanical form. Minoton shots were divided between stop-motion and a man in a suit (Peter "Chewbacca" Mayhew). With two techniques frequently juxtaposed, it's interested to see how the animator was able to keep it in balance. "I'm adverse to men in suits because I think you lose the effect you're trying to gain. Stop-motion is often ideal for mechanical movement, anyway. But had we tried to animate the Minoton on the deck of the ship in the long shots, the picture would never have been completed."



THE GRAND LUNAR SELENITE (*FIRST MEN IN THE MOON*, 1964). A rare study of Harryhausen's lead "insect moon man", possibly an inspiration for the hopping Martians in *Quartermass and the Pitt* (1967). The bulbous insect man was animated in only a few scenes; its minions were played by little people in costumes because of their quantity. By comparison, it was a pleasure to witness this model in action. The Dynamation process was complicated by the film's anamorphic format. Contrary to rumor, the Grand High Exalted Mystic Lunar did not preside over Ralph Kramden's Racoon Lodge.

PHOTO: COURTESY PAUL MANDELL ARCHIVE

THE GIANT SQUID (*MYSTERIOUS ISLAND*, 1961). Harryhausen's reprise of what he calls "a giant nautiloid cephalopod." Unlike the one in *It Came From Beneath The Sea* (1955), this one sported six tentacles, an evil red eye, and menaced divers under Captain Nemo's island. Some live-action plates were shot underwater and projected behind the model. Tentacles required almost microscopic moves for a slow, undersea effect.

THE SATYR (CIRCA 1940). Shortly after animating his Jupiter creature in 1939, Ray planned a 25-minute experimental film using Ravel's *Daphnis & Chloe* as background music. The lead character was to be a Satyr, which he sculpted in a strange grade of plastilene clay. Bald-headed and goat-legged, it later became the inspiration for the Cyclops in *The 7th Voyage of Sinbad.* According to Ray, "*Daphnis & Chloe* was going to be a semi-ballet subject. Part of it was storyboarded but never photographed. The Satyr never went past the clay prototype." Note the broad cheekbones, pointed ears and malevolent sneer, a facial style he created at age twenty—one that would haunt many of his models!

CAREERS

Jim Danforth: Part III

A tale of cinematic survival.

On location with *Timegate*. A miniature hovercraft is being filmed for a scene in the Alabama Hills near Lone Pine, CA. Note the elaborate boom for controlling the miniature. Jim Danforth is left of camera.

By JOHN DODS

Partway through nine hours of conversations with special effects creator Jim Danforth I realized that his frequent digressions about the inner world of special effects filmmaking were more fascinating than the detailed career chronology that we had been attempting to compile. Accordingly, I am departing from my original purpose of presenting here a Danforth filmography, and instead refer readers interested in learning more about his prodigious early and middle career periods to the bibliography that follows this article. Herein—the concluding installment of this series—Jim Danforth reveals the inner workings of the effects nominating committee of the Academy of Motion Picture Arts and Sciences, gets technical while speaking of his recent special effects creations, and offers some surprising feelings about a very difficult profession.

Danforth and the Academy

In 1976 Jim Danforth caused raised eyebrows and generated a controversy that included comment in *Variety*, *Cinefantastique*, and *People* magazine when he resigned from the Acadamy of Motion Picture Arts and Sciences following the decision to award the Dino De Laurentiis remake of *King Kong* a special acadamy award for its special-effects work. "I was on the visual effects nominating committee" explained Danforth, "I had had serious misgivings about the committee for some time, but the *King Kong* award made my decision to resign easy."

Danforth explained how effects nominations were made at that time; "The academy made up a list of every picture that could possibly qualify for any award. The films must have been screened theatrically in 35mm in southern California during the calander year ending December 31st. The film must have been advertised seven days consecutively in one of the Los Angeles papers. Each of the Acadamy's nominating committees had a copy of this

list. The effects committee had a luncheon during which an acadamy representative went down the list of titles. If anybody in the room expressed the opinion that any film mentioned contained work worthy of consideration it was noted. Later a letter was sent to the producers or distributors of the recommended films requesting the submission of a compilation of scenes from their film, together with a written description of how the scenes were done. If the producer failed to do this (as once happened with one of the James Bond films) the film was then disqualified. The committee voted on five categories: opticals, animation (used to simulate some kind of reality as opposed to an animation sequence that is not integrated into live-action portions of a picture), process projection, miniatures, and matte paintings. Not all pictures were submitted in all effects subcatagories; a picture might only have process projection or only opticals. I'm a little fuzzy on this but I believe that we scored the films between 0-10 points. The two highest scoring films would be that year's nominees, which would then be voted on by the general membership.

"There were things going on in the visual effects committee that I could never find out about or figure out and *I* was a member! I couldn't find out how they chose a president—apparently there was a lot of back stage stuff. We would get instructions that would come out of some kind of meeting to which none of us were privy—like one year when they made a very strong pitch that *no* effects award should be given.

"The year of the *King Kong* award, the committee had voted that the Board of Governors give an award to *Logan's Run*. The majority decision was *not* to give *King Kong* an award, but the Academy gave the film a special FX Oscar, anyway. I heard that a letter was sent by the Dino De Laurentiis organization saying 'Come on gentlemen, let's reconsider this!' I went down to the acadamy and said 'This is ridiculous! What's the point of having a committee if you're going to overrule it?' I gave them back my plaques. I told them 'These things are worthless, I don't want them hanging on my wall!' Later I wrote a letter to the Board of Directors and to Variety—which they printed—explaining why I had done this.

"I thought the special effects in the *King Kong* remake were ridiculous—inferior to the effects that had been done in 1933—a picture that *didn't* get an acadamy award. A couple of shots were great: the man falling off the log, for example. I thought it was the best man-falling-away-from-camera shot I've ever seen. I've always felt that the concept and design of the effects shots is part of what you judge when you evaluate an effects shot, not just, 'Does it have matte lines?' or 'Is the process in focus?' I think that concept and design are the *most* important part of an effects shot. You can get away with technical faults if the shot is aesthetically and kinetically sound."

Danforth cites the original *King Kong* as an example of this idea: "Overall, the animation is real bad, but you buy it because the exciting drama, staging, and design of the shots makes you *want* to buy it. I think that the concept, staging, and planning of the effects shots in the *King Kong* remake were outrageously inept. I offended a lot of people who had worked on that film in trying to make this point. I explained in my letter to the board of directors that I was *not* faulting the work of Frank Van der Veer or the talented people who worked on this film; they did what they were asked to do and they did it well. My complaint was that *what* they were asked to do was misguided.

"In addition to my leaving, Bill Taylor and Al Whitlock resigned from the committee at about the same time that I did. We hadn't talked about leaving together, it just happened as a coincidence. Some folks said 'Hey, all three of these resignees were working on the Universal version of *King Kong*; this must be a Universal orchestrated power play of some sort—a political move!' That wasn't true at all. The only truth to that was probably that all three of us had been thinking about *King Kong* and worked out what could be done with 1976 technology on a new version of *Kong*. We were painfully aware how short of the mark the Dino De Laurentiis version had fallen."

Harryhausen and the Academy

Though it's hard to believe, Ray Harryhausen has neither won nor even been nominated for an Acadamy Award. Danforth speculated on the reasons: "I don't really have an awareness of why his films were never nominated in the early years, 1953-1960. That has always been beyond my comprehension. Most of the effects work being done in the science-fiction films of the 50s was obviously awful—even a film like George Pal's *Conquest of Space* had matte lines that were *terrible*. The composite stuff in Ray's films was so good that I couldn't figure out how it was done! I could tell what everybody else was doing but I couldn't tell that Ray was using rear projection."

Could it be that academy members—like Danforth—simply didn't know what they were seeing? "I absolutely *guarantee* that that's part of the problem. When I was on the committee I heard some of the things that members were saying—their erroneous interpretations of how things had been done." Members were given written descriptions of how the scenes were done, but often they were not read very carefully, according to Danforth. "I would listen to a man—a man who held a paper saying that Harryhausen's footage contained dimensional animation in front of a rear projection—'explain' that the shots contained a full-sized mechanical in some scenes and a man in a suit in others! They are there to do a job—to know what's going on and evaluate it—and they are shirking their duties. A lot of the people there are real sharp, but it's a majority vote.

"Subjectivity is important, but there's got to be some absolute scale of evaluation. You should be able to say, if from the middle of the theater you can see the matte line, or if the resolution on the back projection isn't up to at least 20 lines per millimeter it isn't good enough. There's got to be some standard. It's no good to say. 'Well I don't think there was any process in that—disqualify it!' So they passed over Ray Harryhausen for years for an unjustifiable but understandable reason: they didn't know what they were seeing. Now there's a situation that's even worse. Several of us have tried to get Ray nominated. I think that they have basically decided that we are all crazy. The only

A Rhamphorhynchus makes a U-turn in *When Dinosaurs Ruled the Earth* (1970). Note the blurred wings.

thing that I can think of that's going to work is if somebody in the upper political echelons of the academy has kids or grandchildren who love what Ray has done and they talk about it all the time until it dawns on one of these people that there's something *wonderful* going on here. Then something may happen. But if you or I do anything about it, it may be the kiss of death.

"Ray Harryhausen is *more* than just an effects person. He's a entrepreneur, he's an antiquarian, he's a storyteller who uses effects to tell his stories and there is no category for that. Basically, his orientation is as a performer. His characters are *acting*. He's telling stories—creating mood and wonderful worlds. He's always got surprises. Just when you think you've seen everything he does, he pulls something like the Medusa out of his hat."

Recent Activity

A variety of work assignments has kept Jim Danforth busy in recent months. His work on *Ninja III* included two paintings and six or seven shots depicting spirit manifestations. The flying aparitions were "mostly animation art." Danforth explained the creation of the effect in which the spirit of a dead Ninja left a girl's unconcious body: "I rotoscoped the scene and did cel overlays on the girl's eye area so they 'lit up.' I also had her skin light up and the whole body take on a glow. It turned out that they had used a hand-held camera on the shots of the girl; they were all out of registration! I had to track the superimposed effects frame by frame on the optical printer when I burned in the glows in order to keep everything in register.

"In the master shot the spirit had to rise out of the girl's prone body, circle a big temple interior and dive into the body of a dead Ninja. The spirits 'ectoplasm' rising from the body was white paint on glass. We took a piece of wet glass, put it at a 45-degree angle to the camera and flowed white waterbase paint down the surface. It was shot upside-down at high-speed. The paint spread on the wet glass and made very interesting patterns. I filtered it so it was very blue. I superimposed a reversed-density shot of a white stop-motion Ninja model, so we got a transparent grey silhouetted Ninja raising its head and arm. The shots of the flying spirit were cartoon animation drawn in black marker on white paper. Black-and-white 'high-cons' were made from the drawings and rear-projected through colored filters. Later those were rephotographed through various soft-focus filters and diffusions at different exposures. We made a weak matte of that and matted that image into the scene. It all goes by *very* fast—one of those effects that takes months to do and seconds to see.

"After *Ninja III* we did six shots for George Lucas' TV movie *Ewok Adventure*. Then we did a shot depicting heaven for another TV film, *It Came Upon a Midnight Clear*, with Mickey Rooney. I just finished a shot for George Romero's *Day of the Dead*—a boring shot that no one will notice; they needed the buildings taller in a shot of a Florida town.

"The biggest thing we've done recently is our work for Larry Cohen's *The Stuff*. Several other people also did effects work on that picture: Dream Quest, David Stipes, and Dave Allen (who did the bulk of it). We did some matte paintings. We built a factory in miniature, took it down to the beach and blew it up with the help of pyrotechnic expert, Joe Viskocil. There were silos bursting with 'the stuff.' We also blew up a Dairy Queen stand in miniature and composited it into a shot of a street that has been barricaded. There's a shot at the end of the picture where the people, realizing that eating the 'stuff' is bad for you (it takes over your mind), burn their cartons of 'stuff' in a big bonfire. I got some extras and shot them outside my studio at night. I lit the people as if the source was firelight. I did a painting of a big pile of cartons and superimposed flames over that." The flames were shot separately in miniature at 72 frames per second using a three-foot-high polyurethane foam shape coated with a combustable rubber cement mixture. "We had to rent a location up in the hill," explained Danforth, "and have firemen and water trucks standing by." In the bonfire shot, there is a section at the base where an extra is seen splashing gasoline onto a pile

PHOTO: © 1985 JIM DANFORTH

A giant crab walks across the sand as men hide behind nets in this Jim Danforth animated scene from Hammer's *When Dinosaurs Ruled the Earth*.

of boxes that were real. Danforth had the actor move in front of an otherwise painted pile to enhance the illusion of reality.

"The thing about working for Larry Cohen", said Danforth, "is that he *leaves you alone*! He just says 'Do me a shot of so and so.'" It now appears that some effects shots will not see their way to the final cut of *The Stuff*, which has recently been cut by 30 minutes.

Thoughts on the Business

Filmmaking is *hard*. It can be frustrating, discouraging, and maddening—a field full of difficult, sometimes unreasonable people. Has Danforth ever considered quitting the business? "Oh, usually five or ten times a day! Yes, I've thought about it. I wouldn't mind doing something else. I never wanted to spend the rest of my life doing this. There are so many other things I'm interested in—like archeology and art.

In addition to the normal problems of learning your craft and getting into a position to accomplish anything and earn any money, there's so much *negativism* in the film business. There seems to be a high percentage of folks who want to make sure you don't accomplish what you're trying to accomplish—so it ends up taking a long time to get anywhere.

"I've enjoyed some of the things I've done in filmmaking a very much; I got a lot of fun out of *When Dinosaurs Ruled the Earth* in spite of all the pressure. When I returned from England to California, I wanted more than anything else to do another film right away. The only thing I've done professionally that I can say I *consistantly* enjoy is directing. The only thing that really gives me a high and makes me feel really wonderful is getting out there with the actors and shooting. That is easy. It's not stressful.

Most of the things I've done—even the things that people tell me I'm good at—are very *very* difficult for me. Painting a matte shot is *excruciatingly* painful for me. I don't enjoy it at all. I do enjoy doing stop-motion animation; it's stressful getting ready but the animation is a lot of fun. I'm one of the few animators I know that actually enjoy doing the actual animation. At the same time it is also very hard. Sculpting is fun, but it takes a long time and requires a lot of intense concentration.

"I used to go on the assumption that if you tell a young person not to go into effects and if that discourages him, then that's good because he shouldn't have been in it in the first place. If it *doesn't* discourage him then he has a chance of getting somewhere, I thought. Now I don't really recommend discouraging people just for the sake of discouraging them, but it *is* a difficult business. There's something new that people should consider: 'the future is not what is used to be'—the day of the small business is going quickly. The economics are such that the survivors are the conglomerates and big corporations. *I'm* still here and still making a living but how long that's going to continue to be possible I don't know. Whether other people are going to be able to come into the business 10 years from now and work in this fashion I don't know—I have some doubts about it.

"The technology is such that now it has become hard for an individual to get enough cash together to even afford the technology that is now in demand. I've got a couple of process projectors, an optical printer, several Vistavision and 35mm cameras. If I sold it *all* I could just barely get a broadcast-quality color video camera and have a little left over. There wouldn't be enough to buy a tape duplicator or editing system. Film is going the way of the Neanderthal and I'm afraid I'm a Neanderthal!"

For a man who designs, directs, sculpts, paints, writes—and in between times elevates the art of stop-motion-animation higher than it was supposed to go—"renaissance man" might be a better description. Technology will come and go but creative talent is never outmoded. CM

JIM DANFORTH BIBLIOGRAPHY

American Cinematographer, March, 1965. ASC Holding Corp., 1782 North Orange Dr., Hollywood, CA. "The Mad Mad World of Special Effects" by Linwood Dunn. Contains behind-the-scenes coverage of the stop-motion ladder sequence on which Danforth worked.

American Cinematographer, Volume 64, #3 (March 1983). "Matte work for *The Blue and the Grey*" by Tom Sullivan. Covers Danforth's effects work for this TV movie.

American Cinematographer, Volume 65, #10 (Nov. 1984). "Improved color for process projection dupes" by Jim Danforth. A hard-core technical article explaining masking procedures used by Danforth to control contrast in the rear projection technique he uses to combine painted elements with live action footage.

Cinefantastique, Volume 5, #2. Frederick S. Clarke, P.O. Box 270 Oak Park, Ill. 60303. "The Special Effects of Flesh Gordon" by Mark Wolf. Details who did what on the effects filled soft-core porn film.

Cinefantastique Vol. 11, #2. "Caveman" by Paul Sammon. 6 pages of photos (mostly color) and info on the effects and stop-motion work created for the prehistoric comedy on which Danforth had a key role.

Cinefex, #5. P.O. Box 20027, Riverside, CA 92516. "Caveman; The *Real* Stars" by Scott Vanderbilt. Long article with many color photos contains info on Danforth's key role in this effects filled production.

CINEMAGIC #27. Starlog Press, Inc. 475 Park Ave. South New York, N.Y. 10016. "Jim Danforth Part I" by John Dods. The first installment of this series with color photos. Part I deals with Danforth's pre-professional filmmaking endeavors and his thoughts on film unions, perils of the profession, and the Go-Motion TM process.

CINEMAGIC #28. "Comments of the 'Death' of Stop-Motion" by Jim Danforth. Danforth's reply to a commentary by CINEMAGIC editor Dave Hutchison that appeared in CINEMAGIC #26.

CINEMAGIC #29. "Jim Danforth Part II" by John Dods. The second installment of this series with color photos. Part II covers Danforth's stop-motion technique including animation bluring and model construction.

FANGORIA Volume 8 #2. O'Quinn Studios, Inc, 475 Park Ave. South, New York, N.Y. 10016. "Jim Danforth and Dave Allen" by Mark Mcgee. 3 ¾ page sketchy look at the sometimes overlaping careers of both effects animators.

Fantascene Vol. 1, #2. (Summer 1976). Contains a 6 page interview with Danforth by Robert Dyke and Robert Skotak, Includes 15 B&W stills.

Modern Monsters, Oct./Nov., 1966. "Jack the Giant Killer." Includes information about Danforth's work on "Jack", including a short Danforth interview.

Penthouse Volume 4, #6. (Feb. 1973). Penthouse International, New York, N.Y. "Flesh Gordon"—a preview of the then unreleased film featureing color photos of the stop-motion monsters.

The Monster Times, #40 (April 1975). "When Danforth Ruled the Earth" by Gail Morgan Hickman. Brief interview with Danforth with some good B&W photos.

BOOKS

Movie Magic by John Brosnan. St. Martin's Press, Inc. 175 Fifth Ave. New York, N.Y. 10010. Includes a 33-page chapter on "The Model Animators" featuring some info on Danforth's work. B&W photos.

The Films of George Pal by Gail Morgan Hickman. A.S. Barns & Co., Inc., Cranberry, NJ. Includes photos and information on Brothers Grimm and Dr. Lao.

The Saga of Special Effects by Ron Fry and Pamela Fourzon. Prentice-Hall Inc., Englewood Cliffs, NJ. Includes career information and anecdotes.

Special Effects in the Movies—How they Do It by John Culhane. Ballantine Books, New York, NY. Includes photos and career information.

By JOHN DODS

It's Done With Mirrors

An application of the beam-splitter process, the "60/40" system can help you blast-off into space in your next film.

By PETER MONTGOMERY

Before I begin this article, I want to give credit to Jimmy Bryant for his article in issue #10 of the original series of CINEMAGIC published by Don Dohler. The system I use in this article is the one Mr. Bryant described. Basically, the purpose here is to describe a use of this system (which I call the 60/40 system) for producing high quality and often spectacular space shots.

I needed a way of making high quality shots of a spaceship flying through space and doing battle with a planet's defenses for a short film I made a few years ago. While bemoaning the thought of extensive backwinding, I remembered Mr. Bryant's article, "Double Exposure Effects Without Backwind," and I thought of a way of using the system he described to create space shots. One of the big advantages of the 60/40 system over backwinding is that it allows you to see what the final composite will look like by simply looking through the camera. With backwinding, you have to wait until the film is processed to see if your composite shot worked. While the system does have certain limitations (what system doesn't?), it filled the bill perfectly for the effects shots I needed for my film.

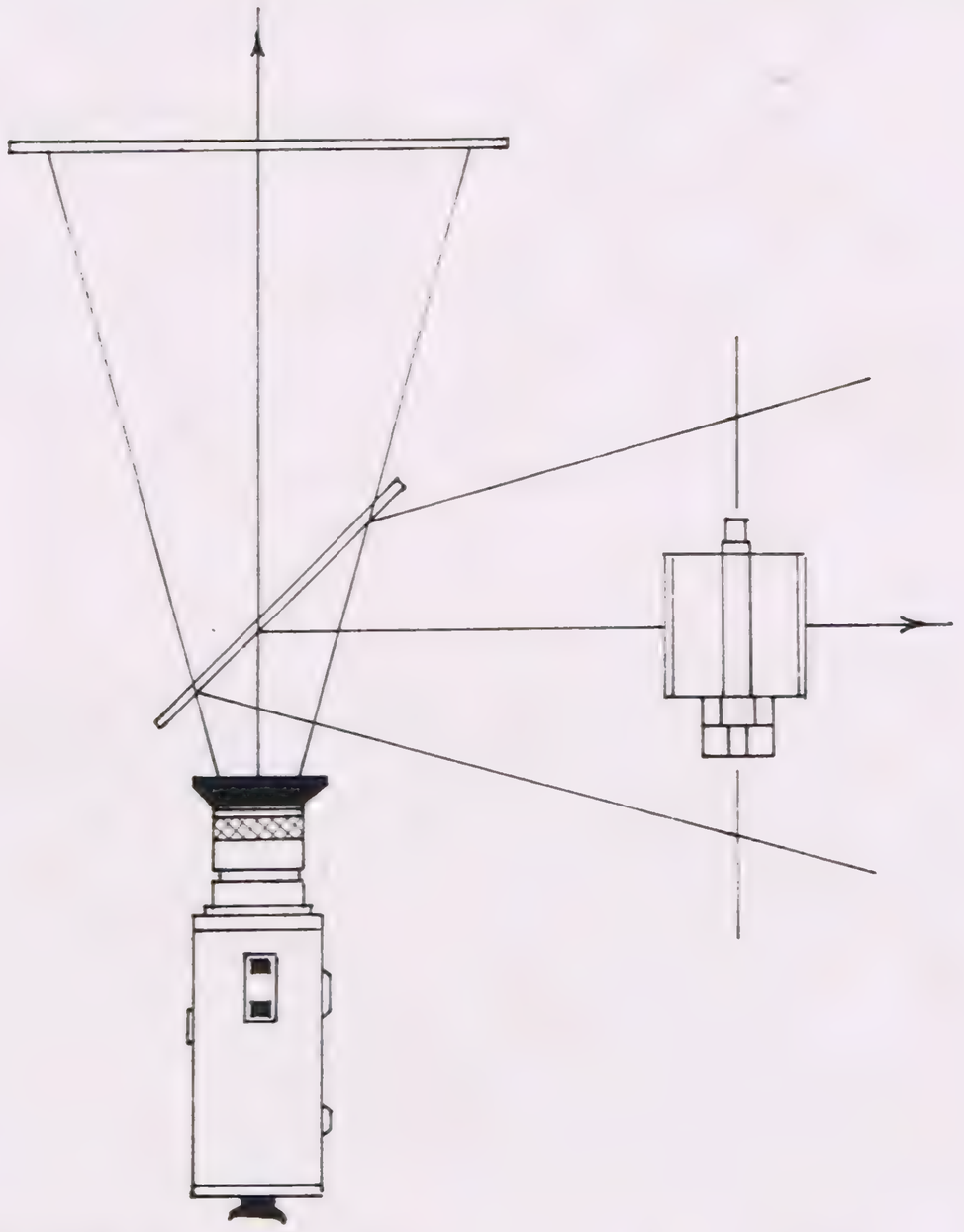


FIGURE #1 This is the basic set-up for the 60/40 system, showing the four main elements of their respective positions.

Setting Up

For those unfamiliar with the basic premise of the system, here is an explanation. As seen in figure 1, the basic setup is a variation of a standard front-projection setup. By placing a semi-silvered mirror which reflects 60% and transmits 40% (hence the name 60/40) in front of the camera at a 45-degree angle, the camera sees both the reflected image from the side, and the transmitted image from the front of the camera.

The idea is to place a model (or whatever you are photographing) on the side of the camera, and a lightbox in front of the camera. The positions of the lightbox and model can be reversed, but since the mirror reflects better than it transmits, the lightbox is better suited to taking up the

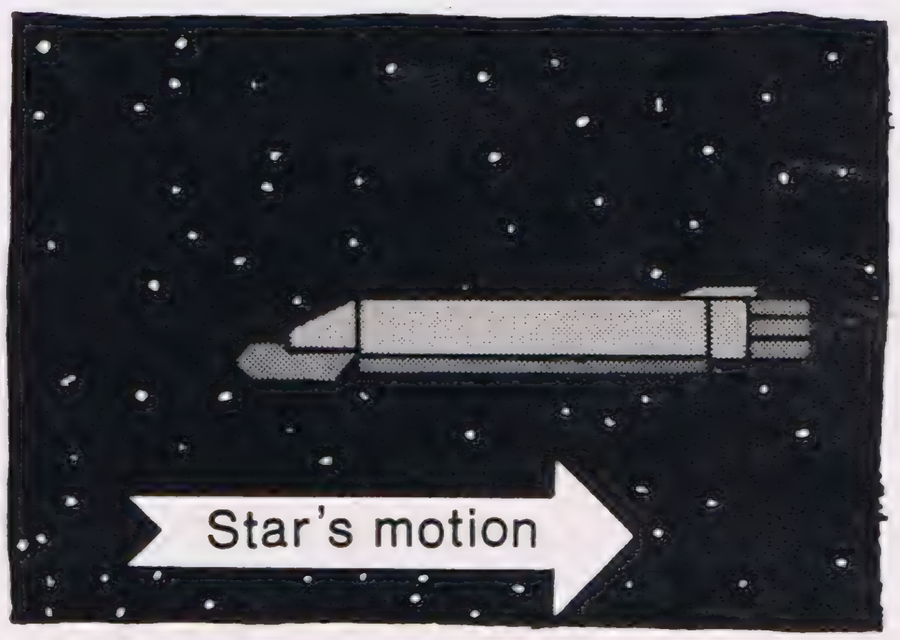


FIGURE #2 The ship is stationary with respect to the film frame, but the stars move, creating a feeling of motion.

ART: PETER MONTGOMERY

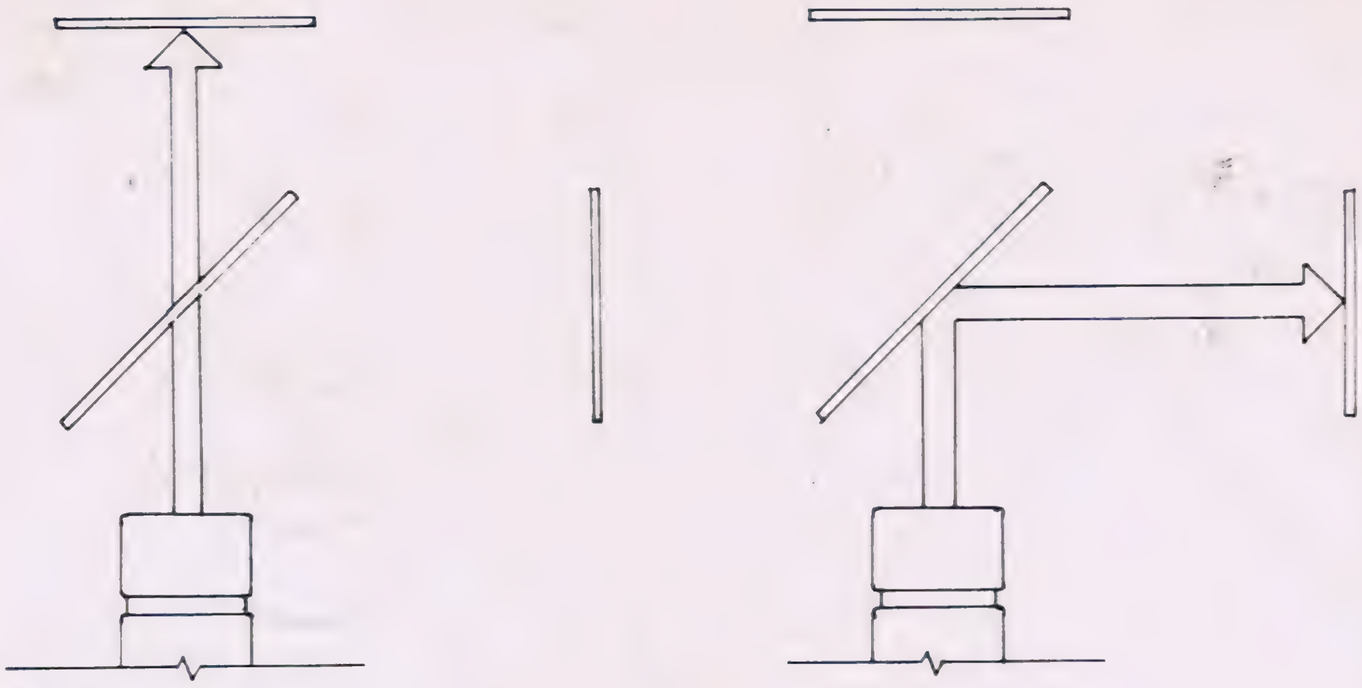


FIGURE #3 In order for a shot to be completely in focus, the length of the arrows must be equal.

slack. With the lightbox off, the camera sees nothing but the model. If we turn the lightbox on (assuming it's bright enough), the view of the model from the side will be obliterated by white light. If we cut a hole in a piece of black paper in roughly the same shape as the ship and place it in front of the lightbox, we can see the background again, but the model is covered by a glow. By putting the lightbox on a dimmer and fading it in, you can create the classic laser zap a 'la *Star Trek or War of the Worlds*.

To produce the shots described in this article, you will need the following materials: a camera with either manual exposure override or an exposure lock and a single frame button, lights, a model or photograph, cardboard, a semi-silvered mirror, a lightbox, black paper, a black background, and an assistant.

The two major problems you are likely to encounter will probably be in obtaining

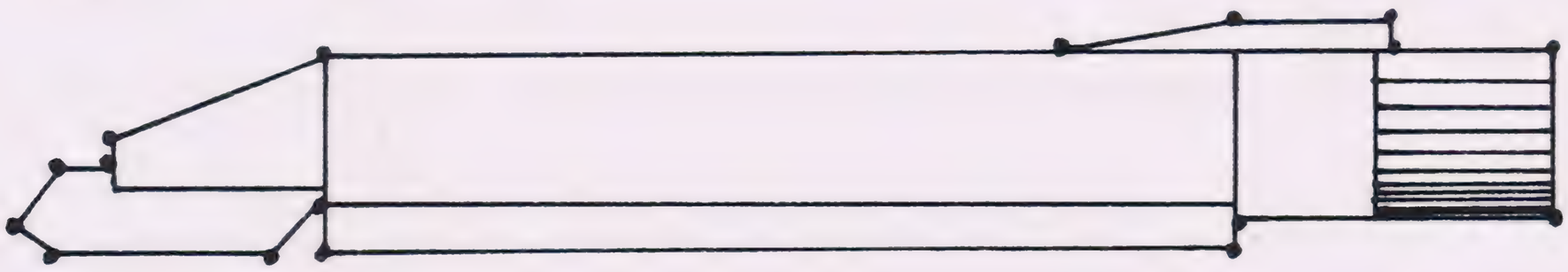


FIGURE #4 The outer points of the ship have been plotted, and the matte below is the result.

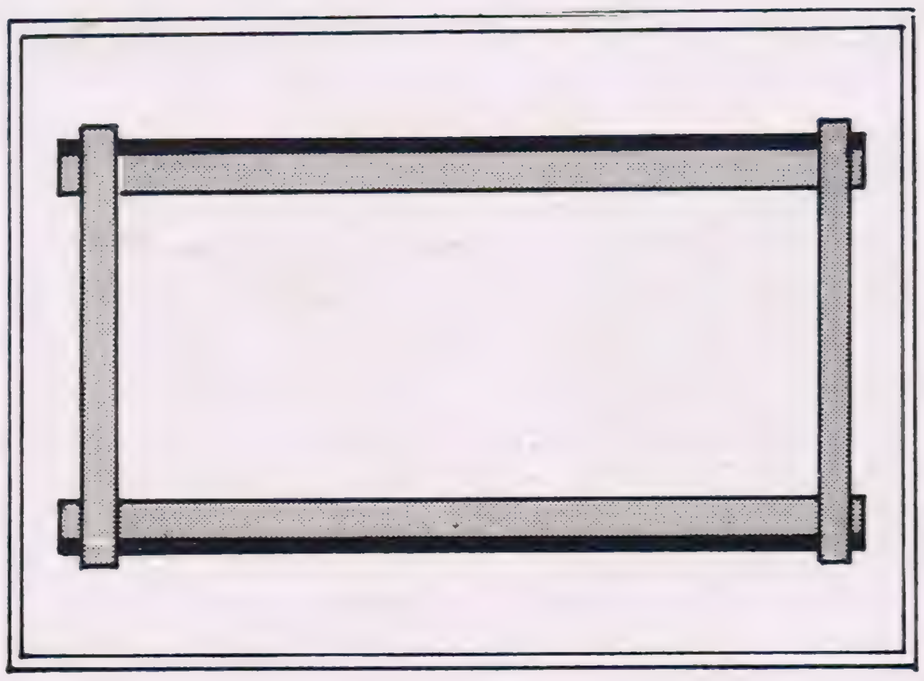


FIGURE #5 This is the prepared light box, with cardboard strips acting as runners.

the lightbox and the black background. An easy black background is seamless paper, the paper used by photographers as backgrounds. It is available at larger camera stores. An alternative is to buy black cloth at a fabric store, and stretch it on a frame. If you decide to use fabric, make sure it has a dull finish. As for the "lightbox," don't worry: Take a screen door's storm window, sit it on a table and support it with some cinder blocks. Then simply tape a piece of frosted acetate (available in art stores) to the glass, put some lights behind it, and *voila!* Instant lightbox.

Tracking Through Space

A common scene in many science-fiction movies, and one I needed in my film, is a tracking shot of a spaceship in which the camera keeps pace with a ship flying through space (see figure 2). To ac-

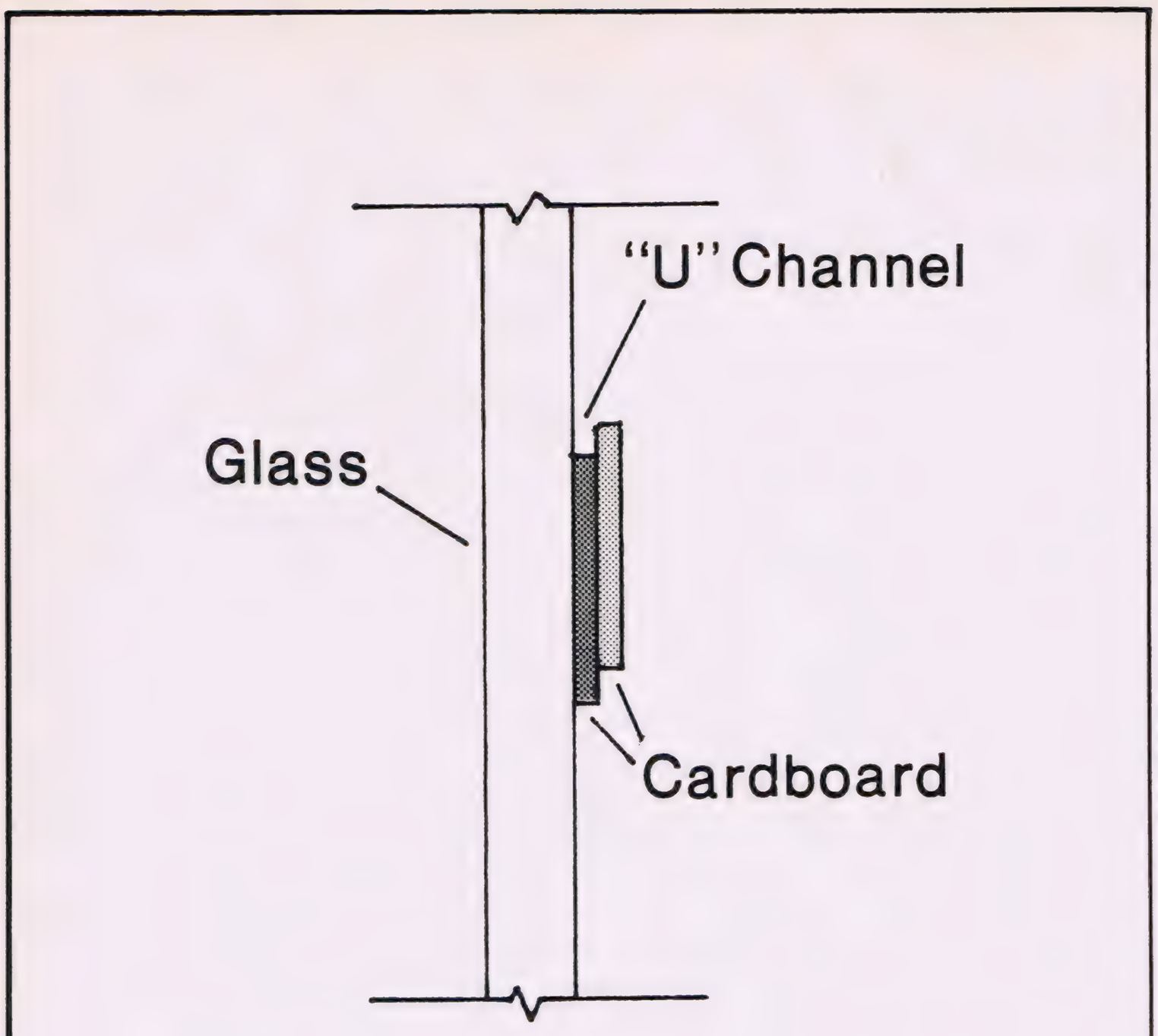


FIGURE #6 This is the way the cardboard is stacked on top of the glass to create a channel for the starfield.

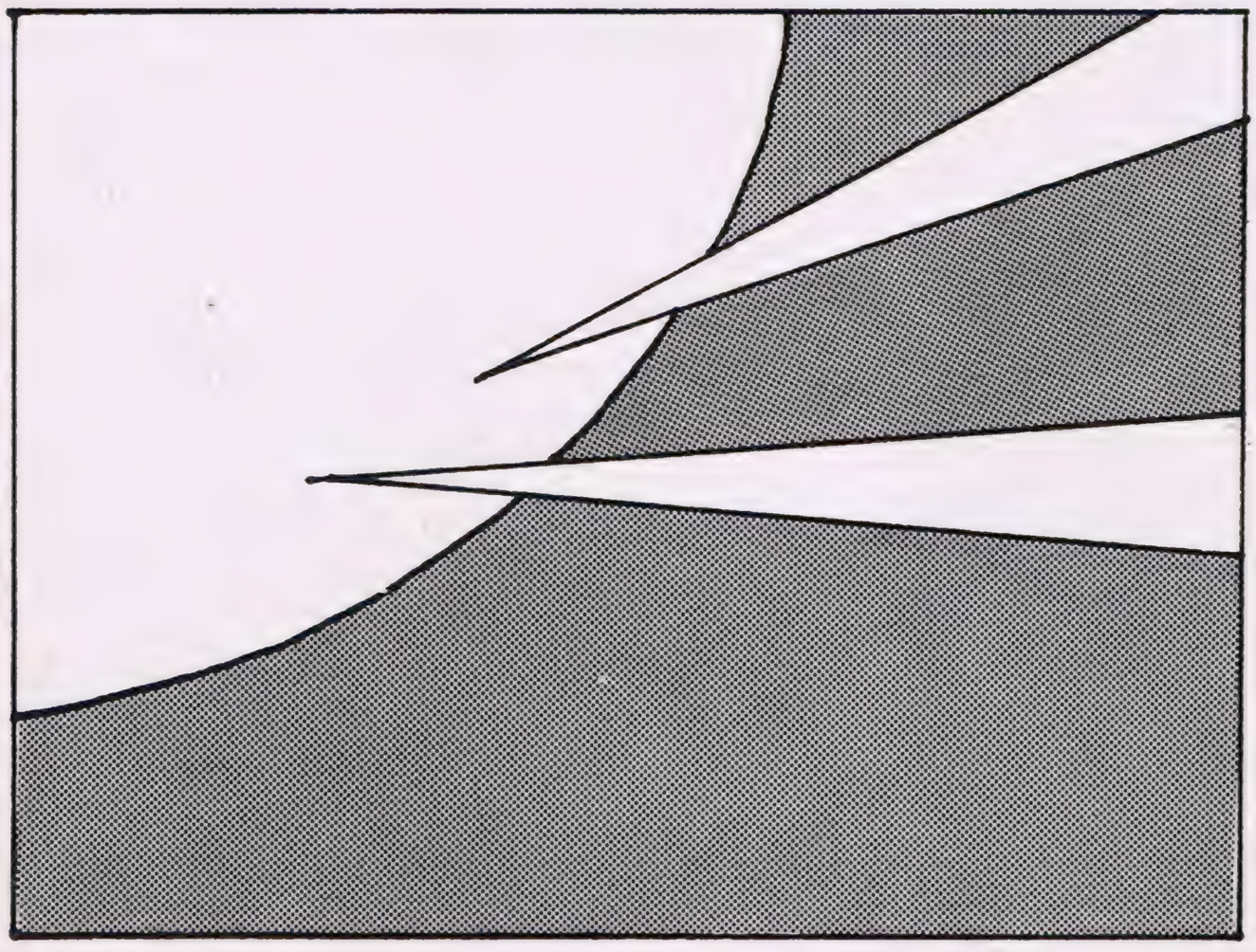


FIGURE #7 The gray area is where the stars should get punched in. The white area shows the V-shaped laser cuts, and the space the photo of Earth occupies.

ART: PETER MONTGOMERY

complish this shot, you'll need the setup in figure 1. First, set up your lightbox on a table, and arrange the camera and mirror in front of it. Tape something to the lightbox and focus on it. This will be your reference focus. While looking through the camera, have someone position the model on the side of the mirror.

There are two criteria to be met when positioning the model. First, it should be positioned in the frame so that the shot looks the way you intended it to look. Second, it should be in focus without having to shift from your reference focus. This is an important aspect of the system. In order for an entire shot to be in focus, the distance from the lightbox to the camera must be equal to the distance from the model to the mirror to the camera (see figure 3). The model I built was designed to mount on a tripod, and my assistant moved the tripod and its head as I instructed while I composed the shot through the camera lens. Remember that you are seeing a reflection, so everything is reversed. Hang your black background, and light the ship.

You now need to get an exposure reading of the model. In order to get an accurate exposure, you'll need a neutral gray card or a light meter capable of taking an incident reading. If you've never used a grey card before, go to a camera store and buy a pack. You'll find them to be an excellent investment, especially since they only cost about $5.00. To use the card, turn on the lights, place the card directly in front of the model and zoom in until the card fills the viewfinder. Lock in the exposure. If you can't zoom in enough to fill the viewfinder with the card, remove the camera from the tripod and take the exposure from about a foot in front of the model. If you move in on the model and take your reading without focusing through the mirror, subtract one f-stop from whatever exposure reading you get to compensate for the light loss due to the mirror. For example, if the card reads f/4, then shoot at f/2.8 instead.

Now, turn the lightbox on. If you look through the camera (assuming your lightbox is bright enough), you should see nothing but white. While sighting through the camera, have your assistant move a piece of black paper around until you can see your ship again, and have him (or her) tape the paper to the glass. Still looking through the camera, have your assistant move a pencil around until the point reaches an outside corner of the ship, and have him make a mark on the paper. Continue on in this manner until all of the ship's outline points have been plotted (see figure 4). Now take off the paper, connect the dots, and cut it out. Result? Instant matte. Tape it back in place, and your ship is almost in space.

To create outer space, you'll need more black paper. Tape together a group of sheets so that you have a long strip. Make sure that the strip is at least four inches narrower than your lightbox. Take a

thumbtack or small nail and punch holes all along the paper. You have now created a star field. Prepare your lightbox with cardboard strips as in figure 5. The idea is to place two strips of cardboard running horizontally. The distance between the them should be the width of your strip of paper. Place two more pieces on top of them that overlap on the inside of the first pieces (see figure 6). These extra strips prevent the paper from falling out by providing a channel that the paper can ride in. The two strips at the ends are optional pieces to aid further in keeping the paper in place. The bottom strip should be marked with lines ⅛ of an inch apart. This gives you calibration marks for the animation of the star field.

Slide the star field in the groove and (assuming you're doing a shot like the one in figure 2) make a pencil mark on it over the farthest calibration mark to the left. If your ship has to travel in the other direction, put a pencil mark on the star field over the calibration mark farthest to the right. The only thing still spoiling the shot is the mount holding up the spaceship. By placing a piece of black paper between the mirror and the ship, the mount is hidden. If you turn on the lights for both the ship and the lightbox and peer through the camera, you'll now see your ship in space.

It's now a matter of animating the black strip of paper using the pencil mark and the calibrations on the bottom strip. Experimentation will show you the best distance to move the paper for each exposure. I found ¼ of an inch to be a good distance. The reason for the ⅛-inch marks is simply to allow for greater control in finding a good speed. You might even consider putting marks 1/16 of an inch apart for best star field speed control.

Laser Blasts

My film also required shots of a planet firing lasers. To accomplish this, I replaced the spaceship with a photograph of Earth. The lightbox was turned on, and a piece of black paper big enough to fill the whole frame was placed in front until I could see the Earth against an all-black background. My friend moved a pencil point around until we had plotted the shape of the Earth on the paper. I then removed the paper, and punched holes in it outside the area the Earth occupied. I then cut two V-shaped slits in it (see figure 7). The paper was replaced, the slits covered, and Earth was in space. Simply uncovering the slits provided lasers.

Speeding Spaceships

To create a shot where the ship moves and the stars are stationary is more difficult, but not impossible. First, we put a table where the spaceship had been placed. We then put two seven-foot 2-by-4s about eight inches apart on the table, and laid two strips of model railroad tracks on top of them. Two flat cars were placed on the tracks, and a fairly heavy book (to add mass and smooth out irregularities in the motion) was laid across the two cars. Power was connected to one of the tracks, and a railroad engine was connected to the flat car on the "live" track. Last, the ship (which was mounted on a small piece of wood) was placed on top of the book. A piece of black paper between the mirror and the tracks hid the engine, tracks, etc., and I now had a means of speeding the spaceship through the frame.

Once again, black paper was taped to the lightbox, and the path of travel for the ship was plotted. I removed the paper, punched in stars (except for where the ship travelled) and taped the paper back to the lightbox. By turning on the railroad engine, the ship appeared to travel through space. One very important thing to remember in a shot like this is to go easy on the number of stars present in the scene. If too many are punched in, the ship will appear to be travelling in a starless gap in space that will look artificial and will spoil the shot.

There are many ways to use the 60/40 process. Although the system has its limitations, you can work around them and create low cost, high quality shots that will amaze your audiences. CM

Untold Horrors of Skull Island

You've heard about "King Kong's" lost spider pit sequence. Here are the details of what happened at the bottom of that nightmarish ravine.

By PAUL MANDELL

PHOTOS: COURTESY PAUL MANDELL ARCHIVE

Denham's men standing on the log are flanked by Kong and a styracosaur at right. This studio publicity paste-up retains the original intent of the shooting script.

What remained of Carl Denham's search party fled through the primordial jungle. One of his men had just been plucked out of a tree by a charging bronto and was bitten to death. "Come back with those bombs, you fools!" Denham screamed as the sailors raced aimlessly through the mud.

In the distance, Kong could be seen cradling Ann Darrow in his paw, making his way to a dry mound near an asphalt pit. "Down, down!" Driscoll whispered to the men as they crouched behind some shrubbery. Then, his jaw dropped at the sight of three bull triceratopses heading toward the asphalt. Putting Ann down on a dry slab, the ape picked up boulders and hurled them at the horned behemoths, killing two. A third retreated into the jungle.

Cautiously, the men backed away and darted in the other direction. Some tripped and fell. The renegade animal caught their scent and stampeded. One sailor in striped trousers, separated from the party, screamed for his mates and hid behind a tree. Furiously, the beast rammed into the trunk, pinned him down and gored him to death.

The men ran toward a ravine bridged by a huge log and stopped dead in their tracks. From a distance, they saw the giant ape carrying Ann across the log. A styracosaur lumbered behind them.

Driscoll pointed to the ravine and waved the men on, exiting to the right. In no time, they gathered at the edge of the abyss.

Kong came to a clearing and placed his golden prize in the fork of a tree. The shouts of the men distracted him. Enraged, he made his way back to the ravine.

Driscoll and the sailors raced across the log. Denham, the last man, was about to cross when he looked up and saw the simian hulk looming on the other side, beating his chest. "Look out!" he screamed, trying to reverse the sailors' course. Then, Denham turned and saw the styracosaur approaching from behind with alarming speed. In the nick of time, he ducked back into the shrubbery.

Driscoll had already reached the left bank. Within seconds of Kong's grasp, he caught a vine at the ravine's edge, swung down to a ledge, and flung himself into a shallow cave 10 feet below.

The men were panic-stricken. Flanked by two monstrosities, they clung to the log, screaming for their lives. The styracosaur bellowed on, trying to dislodge the tree with its long nasal horn. Seeing the animal fueled Kong's wrath. Reaching down, he grabbed the log and rocked it back and forth. One by one, the sailors fell to the bottom of the gorge. Driscoll watched in horror as his friends plummet into the slime. The styracosaur retreated while Denham gaped through the thick, verdant cover.

Only one man remained, clinging to a stump and kicking wildly. The ape-god roared in defiance, thumping his fist hard on the slope. With one mighty heave, he hoisted the log into the air and watched it careen into the abyss. The sailor's scream wailed on endlessly as he bounced off the log and landed in the mud.

The horror over, Denham and Driscoll peer into the ravine. Blackened areas will later be filled in by glass-painted jungles.

Emerging from a cave in the abyss is the spider monster. At screen left, rearing up, is the lizard creature which eventually climbs the vine to attack Driscoll.

Scenario sound familiar? No doubt you've seen *King Kong* a hundred times. But doesn't it read a little strange? Not exactly the way you remembered it?

Believe it or not, the above narrative is not an enhanced novelization of the movie—rather, according to *Kong*'s shooting script, it's a scene-by-scene continuity of how the film actually appeared *prior* to its release! Realizing this is a surrealistic experience in itself, for only in our dreams do we extrapolate new vistas from the most fantastic action sequence ever devised.

Of course, no triceratops or styracosaur appeared in the final film. It was producer Merian Cooper's idea to salvage the most dramatic aspects of Willis O'Brien's *Creation* footage filmed in late 1930 and early 1931, and intercut it with the stunning Dunning process shots of Kong rocking the log, which had been part of *Kong*'s demonstration reel. [See CINEMAGIC # 29, page 28 for an explanation of the Dunning process.] Only certain sections of *Creation* had been shot, including a sequence in which a hunter (Ralf Harolde) mercilessly shoots a baby triceratops, gets chased by its enraged mother, and is gored to death when the animal pins him under a toppled tree. To maintain continuity, Cooper had one of Denham's men dressed like Harolde. This scene from *Creation* was spliced into *Kong*'s rough cut and was retained up until the final editing stage.

Also built for *Creation* by Marcel Delgado [see "The Brothers Delgado" in CINEMAGIC #29] was an arsinoitherium, a colossal ancestor of the rhinoceros. *Creation* called for this beast to charge two jungle explorers and kill them, leaving their carcasses to be devoured by a swarm of pterodactyls. Part of this attack was also sutured into *Kong*'s rough cut, and O'Brien planned additional scenes of the arsinoitherium cornering Denham's men at the ravine. For some reason or other, Cooper was unhappy with the look of this animal and suggested that O'Brien and Delgado change it to a styracosaur. Presumably this merely required redressing one of the larger triceratops models with more ornate facial armor. Eventually, all the scenes of the styracosaur described in the narrative went before the animation camera, only to become orphans of the cutting room.

The queasy notion of having some of the sailors *survive* their fall into the ravine and encounter unspeakable horrors was no mere pipedream in Cooper and O'Brien's minds; it all happened on film in gruesome detail. Some audience members, of 1933 claimed to have seen the forbidden spider pit sequence. Undoubtedly, such tales were products of an overworked imagination—not only did Merian Cooper reconsider their dramatic value before release, the scenes never got past the Motion Picture Board of Censors! It was a bold, audacious idea, an attempt to squeeze as much sensation out of the audience as possible, but one that ultimately proved too show-stopping and repugnant for anyone's taste.

Described here are the nine lost cuts of

One animated sailor on the fallen log tries to help another as the spider prepares to attack. The edge of the table-top set is in view.

the pit sequence, cited verbatim from the script. Due to the ghastly nature of the action, scenarist Ruth Rose penned only the essence of each shot, leaving the details to Cooper's second unit direction and Willis O'Brien's stop-motion ingenuity:

EXT. RAVINE BOTTOM—LONG SHOT—DAY: The men at the bottom of the ravine are attacked by giant insects which come out of caves and fissures to eat them.

EXT. RAVINE BOTTOM—CLOSE UP—DAY: The surprised face of a sailor lying in the mud as he sees this.

EXT. RAVINE BOTTOM—CLOSE UP—DAY: Face of another sailor staring up in horror from the mud. (The suggestion, according to the Delos Lovelace 1932 novelization, was that the sailor landed *feet first* in the mud, buried to the waist and immobilized.)

EXT. RAVINE BOTTOM—CLOSE UP—DAY: Face of a third sailor in the mud, horrified as he sees—

EXT. RAVINE BOTTOM—MEDIUM SHOT—DAY: An insect with octopus arms takes a man (miniature projection).

EXT. RAVINE BOTTOM—SEMI-CLOSEUP—DAY: Its arms wind around the struggling man.

EXT. RAVINE BOTTOM—SEMI-CLOSE UP—DAY: Two men on their backs staring up at a spider monster who attacks them. (Miniature projection)

EXT. RAVINE BOTTOM—CLOSE UP—DAY: The face of a fourth sailor, fallen in mud, staring in horror as he sees—

EXT. RAVINE BOTTOM—FULL SHOT—DAY: A giant lizard takes a man.

After devouring him, this final anomaly climbed a vine hanging from the top of the ravine and made its way toward Driscoll hiding in the cave. Part of the shot survives as Driscoll cuts the vine, sending the lizard to its death.

Bert Willis, who functioned as OBie's animation cameraman, vividly recalled the sequence. "The bottom of the ravine was a miniature set about four feet wide, built in plaster, with a few tiny projection screens behind the log. I don't know *how* many days we spent on that set animating those terrible animals! Spiders, snakes, horrible things! The Pennsylvania Board of Censors demanded that the scenes be taken out. The Board was aimed at women and children, and these things were just too horrible to show."

The octopus-insect was the most loathsome creature to deal with. Delgado built it in miniature based on O'Brien's design. According to Bert Willis, "That thing made everybody a little nervous. OBie wanted *real snakes* for the closeups. So, a lady was brought in with a cage full of them. I must say she knew how to handle them. She had been to South America and had picked them up there. I remember we filmed stuntmen screaming as the snakes wrapped around their bodies. Fortunately, no one was hurt. The censors ordered those scenes removed, too."

The sequence retained only the long shots of the men falling into the chasm.

While the spider devours a sailor, an octopus-like creature coils around its victim at screen right.

PHOTOS: COURTESY PAUL MANDELL ARCHIVE

The camera rolled at eight times normal speed for a slow motion effect. Originally, close-ups of the men landing in the slime were intercut with the actors to suggest the possibility of survival. Because the six-inch jointed dummies refused to react properly during the fall, lead weights were placed inside, causing them to bounce realistically at the point of impact.

Interestingly, anguished screams were actually those of sound effects man Murray Spivack, whose shrieks could be heard in *The Most Dangerous Game*, filmed back to back with *Kong*.

Only weeks before *King Kong* premiered at Radio City Music Hall on March 2, 1933, Cooper and his superiors were buckling under the strain of the picture's length. Fourteen reels had been shot, far too long to suit RKO's New York office, which frowned on a running time of more than 100 minutes. More importantly, there seemed to be too many points where the pace lagged and the peripheral monsters drew too much attention away from Fay Wray's plight. After heated sessions with *Kong*'s editor Ted Cheesman, Cooper ordered chunks of footage removed and brought it down to 11 reels.

Great sacrifices were made in the jungle scenes. Gone forever were the arsinoitheruim, the triceratops, and the styracosaur, although the latter was revived for *Son of Kong* somewhat gratuitously, and a publicity pasteup showing the men on the log flanked by Kong and the horned monster

Willis O'Brien circa 1930 with an unused monoclonius—a cousin of the styracosaur—intended for *Creation*.

confused devotees for years.

Fortunately, the jungle chaos moves so swiftly, one hasn't time to wonder *why* the men stay on the log instead of retreating to the right bank. Only during the after shock, does Denham's absence seem conspicuous, since his scenes evading the styracosaur were removed.

Still, the greatest casualty of all to afficionados and film historians were the creatures of the pit, lost for the ages. Perhaps one day in some technician's attic, or in a mislabeled film can buried deep in the RKO vault, a print of the episode will be unearthed and screened, fulfilling the original vision of its makers. Or, as Denham would have pitched it, "merely a show to gratify your curiosity." CM

Producers' BULLETIN BOARD

Please forward announcements of film projects in current production or near completion to CINEMAGIC, c/o O'Quinn Studios, Inc., 475 Park Avenue South, New York, NY 10016. Please include a photograph of some phase of the production if possible.

The Last One. A young boy wanders alone on plague-stricken Earth. The plague has killed almost all of Earth's population. Only one cure exists—a cure made of human blood. Bounty hunters are sent to get blood from healthy humans. The boy obtains a gun and begins to fight for his life. The film ends with a climactic chase between the boy, who is on foot, and a bounty hunter, who is in a car. Director: Todd Engel. Writers: Glenn Ficarra and Todd Engel. FX: Todd Engel and Glenn Ficarra. Cast: Glenn Ficarra, Robert Ficarra, Michael Chiafitella and Todd Engel. Running time: 25-30 mins. Super-8, Silent. Transfer to VHS for sound dubbing. In post-production. (G.T. Productions, c/o Glenn Ficarra, 91 Ivyhill Dr., Aberdeen, NJ 07747)

The Night Johnny Came Home.

The Night Johnny Came Home. Horror. The bloody tale of a young boy who is accidentally killed by his friends. One year later he rises from his grave and seeks revenge. A reunion is taking place at a former friend's house. Soon the people meet horrifying deaths at the hands of the ghoul. After his murder spree, he takes his friends' bodies back to his grave for a reunion of a different sort. Producer: Cine-Graphic Productions. Director/Writer: Mark Polonia, Makeup FX: John Polonia, Cast: Bill Reese, Mark Polonia, John Davis, Scott Allen, Nathan Davis, John Polonia, FX include rotting-flesh makeup, squirting blood, decapitation, gutting, knifings, night time chase sequences, stunts and Johnny climbing out of his grave. Super-8, color, sound. Running time: 15 minutes. (Mark Polonia, RD #2 Box 463, Wellsboro, PA 16901.)

The Lost Creature. A frightened little space creature hides in the kitchen of a teen's house after his spaceship crashes in the teen's backyard. The teen discovers the creature when he goes to get something to drink. He goes to call all of his friends, who are busy breakdancing in the garage, but only one comes. The action begins when they come back into the house. Writer/Producer/Director/FX: Gabriel Campisi. Cast: James Campisi, Steven Blanco, and more. FX include: animation, animation mixed in with live action, smoke and fire effects, stunts. Super-8, color, sound. Running time: 12 minutes and 41 seconds. (Starlight Pictures, c/o Gabriel Campisi, 4442 E. Sun Vista Drive, Las Vegas, NV 89104.)

Soldiers. Bob, a young soldier with the U.S. Army, is under enemy fire during some future war. He jumps into a trench with another American soldier. There, in the trench, under enemy fire, Bob learns the true identity of his fellow soldier!!! Producer/Director/Writer: Robb Roloff. Cast: Tracy Roloff, Lance Steimle. Camera: Rick Rosas. Sound: Mike Geraci. Clapper/Loader: Lynn Salinas. 16mm, color, sound. Running time: 3 minutes. Cost $725.00. (Sphinx Films, c/o Robb Roloff, 5861 West Donna Drive, Brown Deer, WI 53223.)

Public Agent. A grisly homophobic nightmare freely adapted from an excerpt of William Burrough's *Soft Machine* novel. Producer/Director/Writer: David Dedge. Cast: Ken Highland and Terry Brenner with a supporting cast made up of known lawbreakers hiding behind pseudonyms. Super-8, black & white. This feature is best described as "a cross between Sam Spade movies and *Clockwork Orange.*" (Final Frontier Features, c/o David Dodge, 11 Nicholson St., Marblehead, MA 01945.)

Pickled Fingers of Hate. Lyle Gerkin, a young artist, is tragically dismembered while attempting to paint a particularly ornery model. After retrieving his fingers from the model's digestive tract, he preserves them in a pickle jar. But, gangrene sets in and soon takes over his body, part by part. When he dies, his dormant fingers are reanimated and seek revenge on those who vexed their one-time owner. When they're let loose, not a nose is safe! Don't miss the dreaded nail file scene and the violent-yet-tasteful bittersweet finale. A real nail-biter. Producer/Writer/Director: Dennis Andrews. Cinematograper: Gus Toyevsky. FX: Ron Jamirez. Cast: Don Houseman as Lyle and Rex Reid as the ornery model. Super-8, silent. Approx. 35 minutes. Filmed in beautiful Greenwich Village. (Beauty In Motion Pictures, c/o Dennis Andrews, 75-03 254th St., Glen Oaks, NY 11004)

The Surviving Alien. An alien is out patrolling his galaxy, when his home planet is attacked and all its people are killed. The alien's ship is thrown into Earth's galaxy by the explosion of his planet. He crash lands on Earth. He meets an Earth woman and falls in love with her. But the Earth woman dies when she is hit by a car. The alien takes revenge on the Earth people for killing his only lover. The aliens who blew up his planet finally catch up with him and kill the *only* survivor. A Pickle Production. Director/Writer: Rick Dillman. Cast: Kelly Dawn, Tim Perry and many others. FX and editing: Rhonda Teegarden and Brad Bellm. FX include: Super-8, color, sound. Running time: 15-20 minutes (Rick Dillman, 16 Sylvan Drive, Alexandria, KY 41001.)

There Came a Traveller. On a chilly autumn night, a spiritually discouraged businessman meets a stranger in the woods, and they spend the night in a very meaningful and enlightening conversation. Who was the stranger? Read Hebrews, Chapter 13-verse 2 to find out! Producer/Director: John Martin. Cast: Gordon Perkins, Lin Boise, and Chuck Boise as the stranger. Original music by Ben Kimmich. Super-8, color, sound. Running time: 20 minutes.(Exodus Film Productions, c/o John Martin, 1920 West River Road South, Elyria, OH 44035.)

The Paroxysm Plague. Two explorers in the polar regions discover a strange virus. When the virus reaches the U.S. we find that it turns men into mad killers, raises the dead, and what else? Producer/Director/Writer/Camera/FX: Matte Jaissle. Cast: Matt Hundley, Jennifer Jaissle, Lee Best. FX include: exploding head, knives, garden forks, axes and a rake into a zombie head, cleaver in the face, tongue ripped out through the back of a girl's head. Super-8, color, with sound on tape. Running time: 10 to 15 minutes. (Generic Films, c/o Matte Jaissle, 250 First St., Milan, MI 48160.)

The X-men. They're coming! Three mutants escape their planet which has been long engaged in an endless battle with another system that is destined to destroy their planet with a secret weapon. The three mutants arrive on Earth, which is much like their own planet, and now they must mix with Earthling society. Only later does the real action begin when the X-men's enemies race them to the Earth and end up doing cosmic battle which may destroy the earth. Producer/Director/Writer: Jeff Burton. Cast: Martin Morris, Don Circo, Andy Wyrrick, Jeff Opsatnick, Scott Kingery, Jeff Kohler, Mike Smith and many more. Cinematographer: Steve Rosenburg. FX include: a live-action explosion, miniatures, on location scene and full-scale sets. Super-8, color, sync sound. Running time is 60-90 minutes. Production cost: $800-$1000. International Film Productions in association with Burton/Smith Films. (Jeff Burton, Echo Hills Drive, Omaha, NE 68138.)

Screen Screams: This short film is a tribute to horror films. By using the technique of Kinestasis—photographing still photos in rapid repetition—hundreds upon hundreds of gore-drenched photographs are compiled roughly in order, creating a three-minute film that never fails to hold your attention. Super-8, silent, color and B + W, Sound to be recorded on a separate cassette. Completed in December of 1984. (Brimstone Productions, c/o Kevin Lindenmuth, 36038 Crompton Circle, Farmington Hills, MI 48018.)

Frightmare: A kid is invited over to a friend's house and takes a route through the woods to get there. On his way, he stumbles across a dead body and looks up to see a horrible demon rearing his head at him! The boy runs home to his mother to find that the demon has beaten him there! Surprise ending. Producer: RuRich Studios. Director: Rajiva Seneviratne. FX: Russell Richards. Camera: Rajiva Seneviratne, Chris Mundy, Russell Richards, Meredith Richards. Cast: Russell Richards and Meredith Richards. FX include: superimposed credits and "ghost" effect over live action, makeup, lifesize dead man dummy, and credits that roll by in the end. Running time: 7½ minutes. Super-8, color, sound. (RuRich Studios, c/o Russell Richards, 1621 Trailridge Rd., Charlottesville, VA 22903.)

It's Back Again. According to an Indian legend, every one hundred years a monster comes up from the fires of Hell to take human sacrifices. One Hundred years ago today was the last reported sighting of the monster. Producer/Writer/Editor/Director: Chris Lamphear. Cast: Chris Lamphear, Matt Lamphear, and the monster. FX include: miniatures, puppetry, and optical effects. Super-8, color, silent. (Empire Films, c/o Chris Lamphear, 38947 Bronson Dr., Sterling Heights, MI 48077.)

Halloween Night. It's Halloween and a groups of kids are having a party. Harold, the town misfit, is teased and taunted by the others about his special friend, a scarecrow. Soon things turn for the worse as the kids are lured to their deaths by a mysterious, unstoppable killing machine bent on mutilating and dismembering all who have picked on Harold—for the last time. The night belongs to the scarecrow—for he *lives* tonight: Producers: Cine Graphic Productions. Director/Writer: Mark Polonia. Makeup: John Polonia. Cast: Jeff Seddon, Mark Polonia, Phil Knapp, John Davis, Larry Brought, Bill Reese and Matt Satterly as "The Scarecrow." Makeup FX include: ripped out hearts, an axe in a man's face, bayonnet stabbings into chests, a pick into a face, more stabbings, burns, bladder effects for beating hearts, lots of gory blood and much more. Super-8, color, sound. Running time: about 28 minutes. (Cine Graphic Productions, c/o Mark Polonia, RD #2 Box 463, Wellsboro, PA 16901.)

On LOCATION

The Making of
Frog and Toad are Friends

Filmmaker John Matthews brings children's stories to life through the magic of stop-motion animation.

By TONY ALDERSON

Frog strolls out to check the mail at Toad's house.

Fantasies are created in the oddest places. Inside a nondescript brick building in Hollywood, amid a clutter of tables, set pieces and raw materials, a small group of stop-motion animators are breathing life into a tale of two amphibian buddies. The film, *Frog And Toad Are Friends*, is an adaptation of the popular children's book by Arnold Lobel.

Wearing a rumpled shirt and puffing his ever-present pipe, director John Matthews surveys a green and brown imaginary landscape through the lens of his Cine-Special. This will be his third animated puppet production for Churchill Films of Los Angeles. Matthews' two previous shorts, *Curious George* and *Curious George Goes To The Hospital* have delighted children around the world with their lively tone and high production values. *Curious George* (actually the second of the two films) is especially impressive for its fluid, orchestrated animation and dynamic moving camera.

"It's magical when these guys come alive," says Matthews, explaining his choice of the stop-motion technique. "Dimensional animation has a reality that is more believeable than cel animation. The suspension of disbelief is different."

While there is clearly a market for such films for children, it is a highly cost-conscious market. Filmmaking is, after all, a business and only the profitable survive. With two successful films behind him, Matthews believes he has evolved a cost-effective production process that will make dimensional animation commercially and aesthetically viable.

Faced with the realities of a limited budget, Matthews applied his creativity to solving the technical problems of dimensional animation. With flexibility, simplicity and improvisation as corner-

stones, he developed a methodology that cut costs without sacrificing quality. Matthews describes his films as "wiggy" art, meaning that he takes any and all materials available and applies them to the job at hand. Wiggy art follows the path of least resistance, to happen in spite of all obstacles.

"I like to do things as easily as possible," chuckles Matthews, summing up his production philosophy.

Brass Balls

This philosophy is reflected immediately in the puppet stars of the film. For characters such as Frog and Toad, the conventional wisdom would be to cast a solid foam latex body over a chromed steel ball-and-socket armature. But steel is difficult to machine and such armatures are very expensive. Instead, Matthews built his puppet skeletons out of brass.

Brass is cheap, readily available and easy to machine. Even low-powered hobby lathes can be used. Metal cutting bits are necessary, however. Matthews' joint design requires no milling and only moderate precision. The joints are therefore quick and easy to make. The brass armatures have proved surprisingly durable as well. The armature for Curious George lasted through two films with only minor adjustments, and is ready for more.

The balls for armature joints are turned on a small lathe from ¼-inch round bar stock. For larger joints, 3/8-inch stock is used. Figure 1 shows the steps in machining a ball. The ball is blocked out with cutting bits, then rounded and smoothed with a small file. A little practice is required, but the spinning action of the lathe makes it fairly easy to turn out round balls. Finally, the ball is polished with a piece of fine steel wool.

Amphibian Armatures

The finished ball is then cut off from the rest of the rod with a jeweler's saw or a small hacksaw. At least ¼-inch of rod should be left attached to the ball below the shoulder. The balls are then epoxied into the ends of ¼-inch interior diameter brass tubing, which was earlier cut to the appropriate length for the specific joint. (See Figure 2.) If the ball has less than ¼-inch of rod below the shoulder there will not be enough gripping surface for a secure bond. This "hollow bone" construction is light and strong, and avoids the precision required to machine balls on both ends of a solid rod. Matthews recommends J-B Weld, a special epoxy for metals, to glue the ball ends into the tubes. Ordinary epoxy or super glue isn't strong enough, and silver soldering is definitely more time consuming, difficult and expensive.

The plates are made from 1/8 x ¼-inch rectangular bar stock. (See Figure 3.) Two plates are measured and cut to the same length in a small mitre box. The plates for a typical joint will be a little under an inch long. On one of the plates, the centers of the three holes are located and marked with a center punch. This helps center the drill bit accurately. The two plates are clamped together in a vise beneath a drill press and a 7/64-inch hole is bored through both. The hole in the bottom plate is tapped for a 6-32 thread. The hole in the top plate is enlarged with the drill press to 9/64-inch. The plates are screwed together and again clamped under the drill press. Using a 5/32-inch bit, two outboard holes are drilled through both plates. The use of a drill press is imperative to insure alignment of the holes, which will serve as sockets to hold the balls.

To finish the plates, the edges are rounded with a grinding wheel or a hand file. The socket holes should be deburred, but not countersunk or milled round. A milled socket requires special tools, as any unevenness produces a sloppy joint that will not stay tight. Fortunately, Matthews found he could simply assemble the joint, then break it in by working the ball in its socket and progressively tightening the screw. This

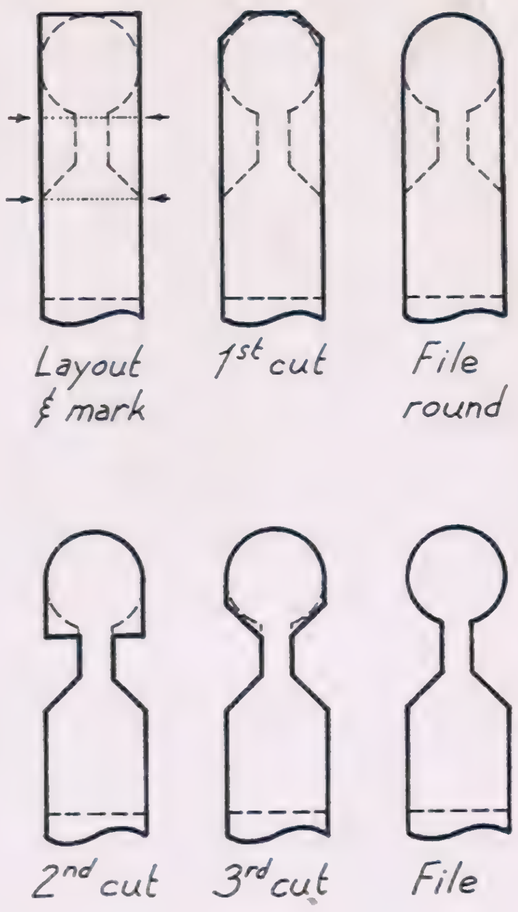


FIGURE 1

ART: TONY ANDERSON

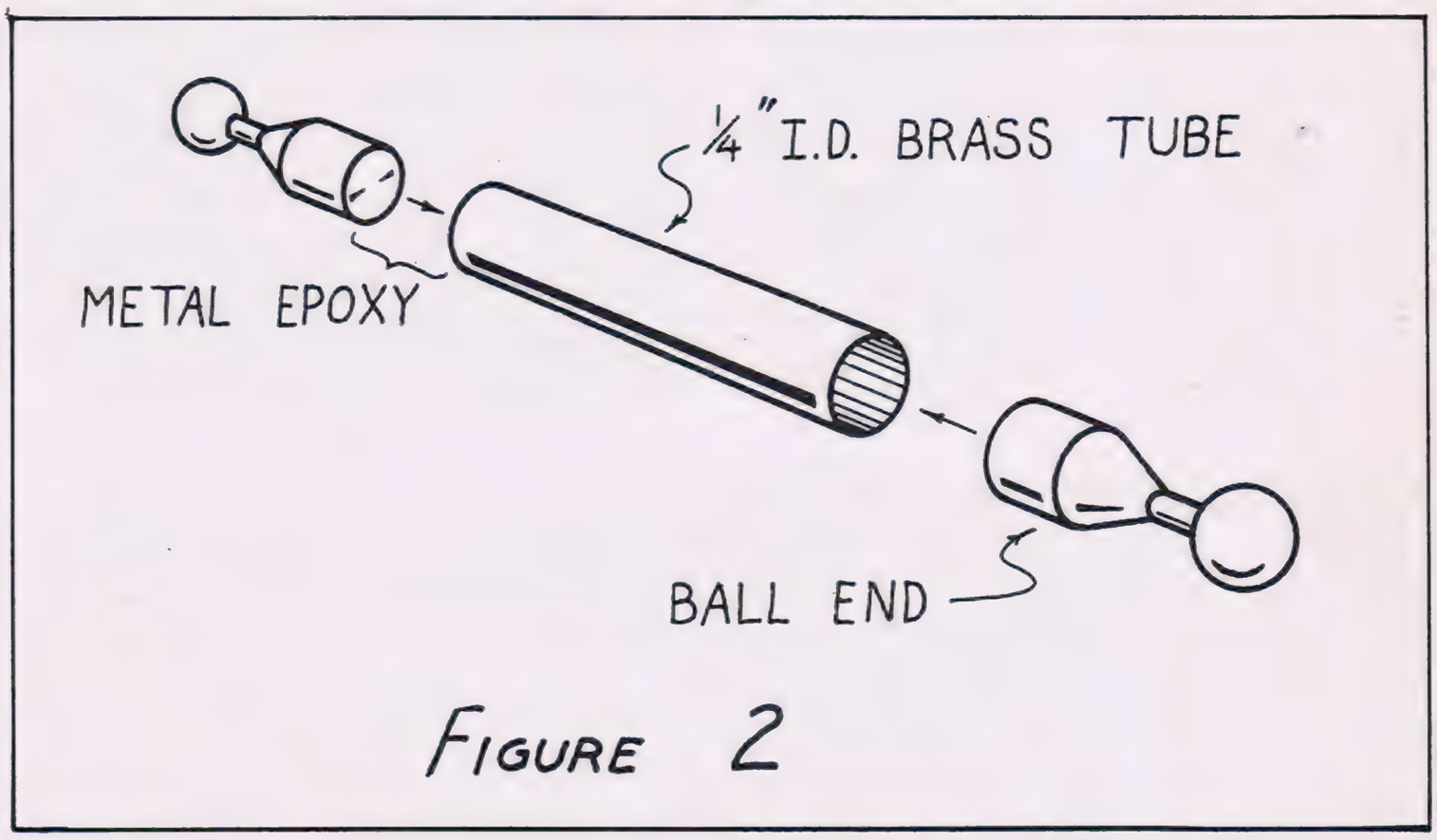


FIGURE 2

ART: TONY ANDERSON

Randy Schmidt rounds the edges of a plate. Eye protection is a must with power tools.

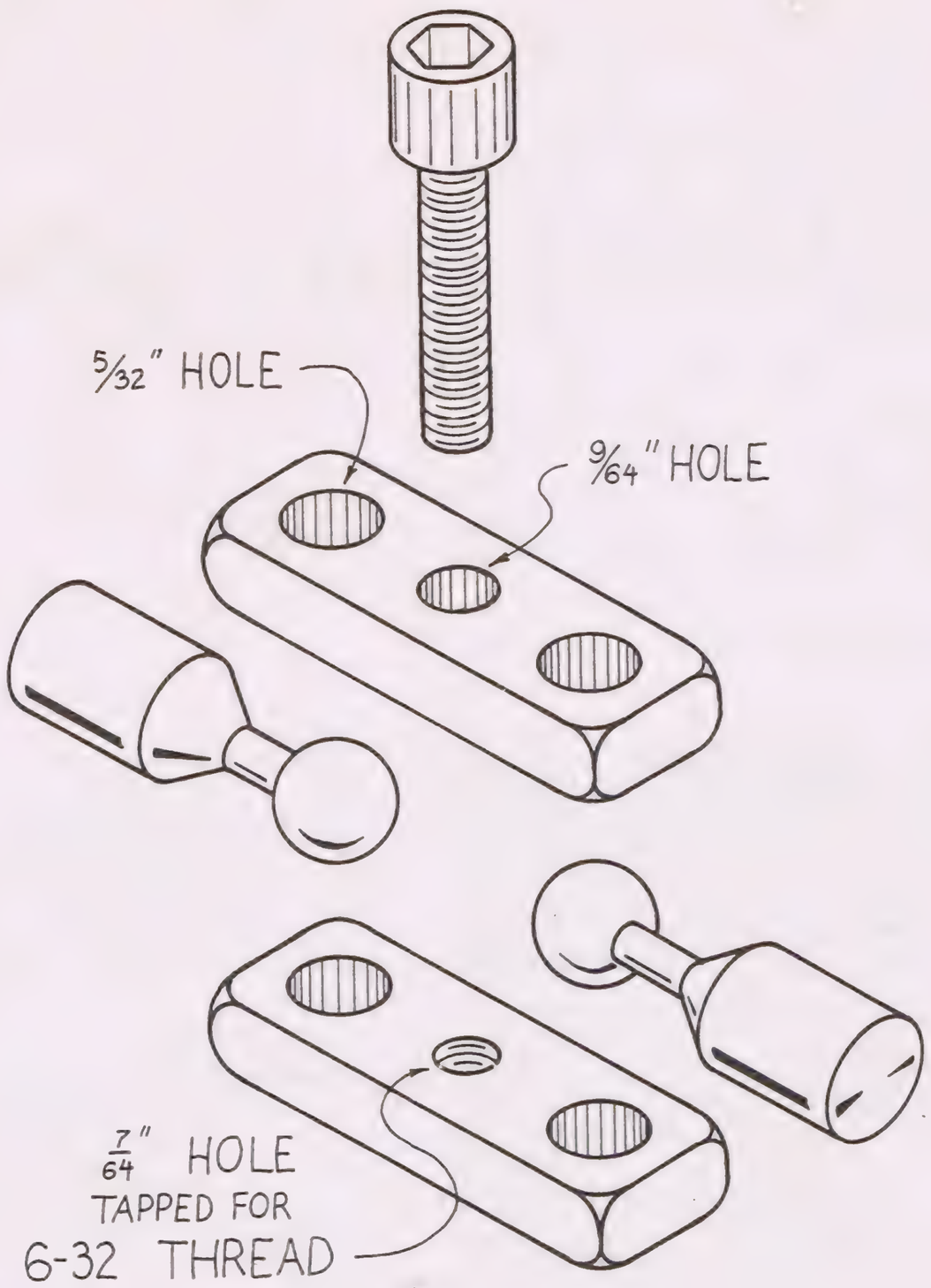


FIGURE 3

ART: TONY ANDERSON

wears a perfectly fitting bevel into the socket. The finished joint moves smoothly, stays tight and will not pull apart.

Incidentally, Matthews has found that hex head screws are best to tension the plates. Hex wrenches fit the screw heads snugly, allowing more torque to be applied. They are also much easier to use when working blind, such as tightening a joint inside a completed puppet.

This basic joint can be applied and modified for just about any stop-motion creature. Matthews has even built aerial braces to fly his puppets with left over armature parts. One simple modification of the joint eliminates the necessity of a lathe. Small brass balls are commercially available for lamp pull-chains. The balls come with a pre-tapped hole. The balls can be screwed onto either end of a threaded rod, secured with Loctite or epoxy, and assembled into the plates.

Patience and attention to detail are the keys to successful armatures. Careful planning is the important first step in building any character. Matthews makes a scale drawing of the character, then designs an armature to fit its special requirements. Full-size plans are drawn before any parts are made.

An interesting design was used for the amphibians' heads. Instead of wiring the lips, Matthews constructed upper and lower jaws of multiple-jointed sections. Each section is something like a paddle with a ball on one end. This allowed complex facial expressions and lip movements for talking, in addition to simply opening and closing the mouth.

The fingers of the puppets are made of braided wire. Matthews uses 28-gauge annealed steel wire, braiding it himself on his lathe at low speed. In the past he has even twisted the wires together by hand. Matthews uses from two to four strands for fingers, and up to ten strands for the spines of characters with wired armatures. Recently, Matthews has had some difficulty obtaining annealed wire and has successfully substituted copper wire. Braided wire is superior to aluminum armature wire because it lasts longer and is less likely to kink.

The feet are tapped for 10-24 threaded rods, which Matthews uses for tie-downs. The rods are screwed into the feet, then passed through holes drilled in the stage. The puppet is secured from underneath the stage floor with wing nuts. The tie-downs have flats ground on both ends. Stubborn tie-downs can then be loosened by judicious application of pliers, without damaging the threads.

Casting the Stars

Originally, Matthews intended to cast hard bodies and replacement heads for Frog and Toad. Matthews had used Bondo to cast replacement faces for the talking characters in *Curious George* with great success. Bondo is an epoxy-like plastic putty used in auto body repair. Construction of a prototype body proved replacement animation impractical for this film. In addition to registration problems, it was not feasible to sculpt enough poses to give the desired flexibility of speech, emotion and movement. Flexible foam bodies seemed the only alternative.

Unfortunately, the chemical components of foam latex will corrode brass during the casting and curing process. Chrome or nickel plating offered a solution, albeit an expensive one. Instead, Matthews decided to cast the foam body separately and then surgically insert the brass armature. He effectively combined the advantages of both foam casting and built-up methods.

Matthews sculpted a head and torso in clay. This form was used to make a master mold. After some careful consideration, pins were inserted to mark the seam for the mold. The seam was planned to run under the clothing usually worn by the characters. The pins were left sticking out of the model about an inch, so they would leave holes showing how to cut open the mold. Next, the clay model was sprayed with matte acrylic to seal it.

Matthews decided to make the mold from Bondo because it takes details well and is more durable than plaster. Bondo comes in two parts, a gray putty in a can, and a red paste hardener in a tube. A small amount of hardener is mixed with some putty, then applied with a putty knife. The putty can be worked for a brief time before it sets, depending on how much hardener is added. Once Bondo sets hard, it can be carved, sanded and painted. Bondo is not especially hazardous, but it is toxic and should be kept away from children. Bondo should only be used with adequate ventilation and away from open flames. Of course, a mask should be worn when sanding any material to avoid inhaling dust particles.

The Bondo mold was made in two layers. The first layer was made of Bondo thinned fifty-fifty with casting resin and simply painted onto the clay model. Before applying the Bondo, the model was sprayed with silicone mold release to prevent sticking. The thin Bondo/resin coat retained the fine detail in the sculpture. After the first coat set, the mold was reinforced with a thick layer of straight

The bar stock is properly marked before turning a ball on the lathe.

The end of the ball is rounded with a file.

The third cut in the rod is made with a cutting bit.

PHOTOS: TONY ANDERSON

Bondo. After the mold had fully hardened, the marking pins were pulled out and the mold carefully cut apart with a Moto-Tool. The halves of the mold were keyed together by the shape of the cut. After cleaning out the clay, any small defects in the mold were repaired. Before use, the interior of the mold was sprayed with more mold release. The Bondo molds have held up well to baking.

Of course, a different mold had to be made for each character. These molds were used to cast copies in foam latex. A great deal of experimentation was needed to get bodies with the proper skin texture and flexibility. Matthews tried varying the components and density of the foam. He added tints to color the foam. He tried painting a skin of latex into the mold and filling the center with foam. (It didn't bend properly.) Matthews finally settled on a fairly dense foam. After filling the mold with foam, it was given a brief spin on an improvised centerfuge before being placed in the oven. Spinning broke up the bubbles in the foam and drove them to the back of the mold, where any defects would be under clothes and away from camera.

After the foam cured in the oven, the body was partially hollowed out and the armature inserted. The foam body was secured to its brass skeleton with super glue. At this time, the eye sockets were cleaned out and eyes made from beads were inserted.

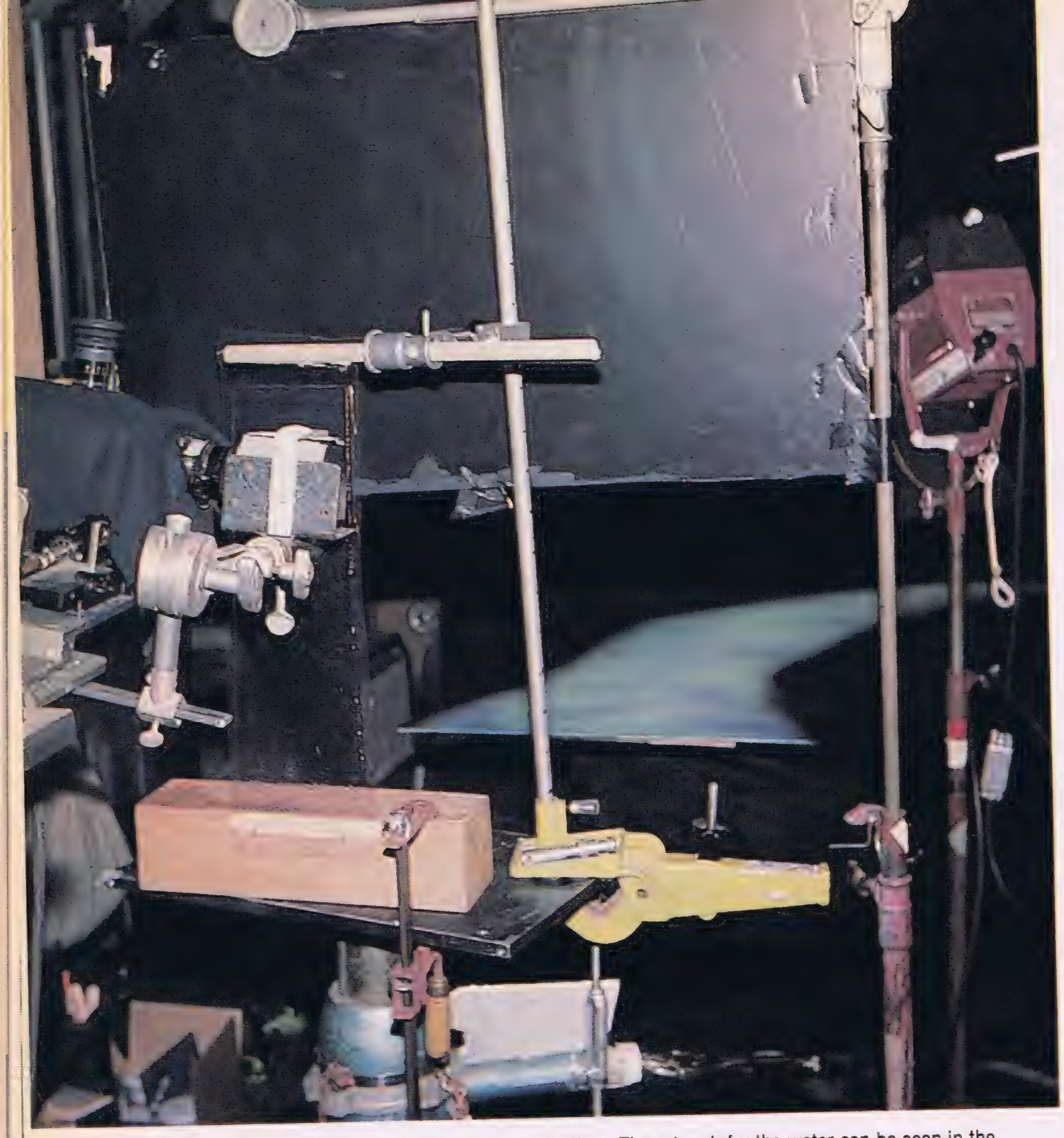
The arms and legs were made in an entirely different fashion. First, a slightly undersize model of the limb was sculpted in clay and sealed with spray acrylic. Next, the form was covered with several coats of liquid latex. After the latex dried, it was peeled off the form, turning the latex skin inside out and exposing its smooth surface. This latex glove was slipped over the padded armature. The seam was secured and hidden with more liquid latex.

When the body was assembled, the skin was given a fine wrinkled texture by the careful application of a turpentine wash. Since the rubber had been pretinted, only touch-up painting and air-

The ball is rounded off on the lathe with a file.

The finished joint is carefully broken in.

Toad sews on his button by candlelight. The lamp flame is Scotchlite illuminiated by front projection. The moon in the window is a backlit cutout.



A beamsplitter system was used to create a water effect. The artwork for the water can be seen in the background. Note how the water has been reversed in relation to the streambed. A ''ripple glass'' hangs between the beamsplitter mirror and the artwork to create a moving water effect.

FIGURE 4

ART: TONY ANDERSON

brush detailing were needed to finish the puppet. The puppets were dressed in costumes tailored by Niki Matthews.

Besides Frog and Toad, the main characters, several other secondary puppets were needed. Using similar techniques, a bird, raccoon, turtle, lizard and other animals were built. Also, oversize heads of Frog and Toad were made. The larger size and more complex armature allowed detailed animation for close-ups.

"Wiggy" Props

Matthews' philosophy of "wigginess" was also applied to the construction of the sets and props for the film. The sets and props were designed to recreate the look and feel of Arnold Lobel's original illustrations. Virtually all the set pieces and props were handmade for the film. Most commercial miniatures were the wrong scale anyway, but Matthews also dislikes the "store-bought" look.

The sets were built on top of sturdy wood stages, constructed of 4 x 4s and ¾-inch plywood. Elevated stages offer important advantages to puppet animators. They permit ground-level camera angles, allow access to tie-downs and give a more comfortable working height. All of Matthews stages are 24 inches high, to allow modular set construction, but are often raised even higher on apple boxes. (By the way, Matthews' apple boxes were made by *Dune* director David Lynch in his "starving artist" days!)

Stop-Motion Swimming

Perhaps the most challenging shots in *Frog and Toad are Friends* were those involving water. In one scene, the amphibians go for a swim. Fluids are difficult to simulate by single frame, for obvious reasons. Matthews wanted to maintain a feeling of physical reality for the water, which meant transparency, penetrability and motion. The effect was created optically in the camera by use of a beam splitter.

A beam splitter is an optical device that can split one beam of light into two, or combine two separate beams into one. Matthews uses a prism block he found at a surplus store. A partially-silvered mirror could also be used. Matthews has even used a sheet of plain glass for some simple effects. The beam splitter is mounted in front of the camera. The camera sees straight through the splitter (the primary image), but also sees lit objects placed 90 degrees to the side (the secondary image). The effect is similar to a double exposure, except that the splitter allows both exposures to be made in a single pass. Because both images can be seen at once, the method enables perfect alignment and interaction. Since both images are first generation, the quality is very high. This was one of the first special effects devices invented for the movies.

A special stage had to be made for the stream. (See Figure 4.) A shore line was

This is the view through the beamsplitter mirror which makes the water effect visible. Note the transparency of the effect at the water line.

made of *papier-mache* over chicken wire. The set was textured and painted as usual, but at the water line the color was graduated into black. Everything below the water line was draped in black cloth.

A piece of Masonite was cut to match the shape of the creek at water level, then flipped over and painted blue-green. This supplied the secondary image of the water. The stream had to be flopped because the beam splitter acts like a mirror and reverses the secondary image. The stream was placed on sawhorses to the right of the camera in an area draped in black cloth. A rippled piece of plastic was placed between the water and the splitter. This was moved during the shot to create waves in the water. By looking through the camera lens, the water and the stream bed were aligned by trial and error.

The black areas of the two sets act as matte and countermatte. This made the water in the final shot semi-transparent, while keeping the shore opaque. By placing Frog and Toad on black stands in the creek bed, it was easy to make them appear to be swimming in water. For another shot in the same sequence, the puppets were suspended on monofilament from aerial braces. Splashes were made of hot glue and animated by replacement.

The beam splitter was used in another segment where Frog tells Toad a story. Frog and Toad were composed in the lower half of the frame. In the upper half, the splitter was used to matte in a "thought balloon" of the two friends enacting the story as it was told. By using both the close-up heads and the full-body puppets, the shot was made in a single pass.

A similar set-up was used to animate the flickering flame of a lamp in another scene. The flame was made of a bit of Scotchlite, a material that reflects light directly back to its source. A colored light was placed to the side of the camera, and the beam splitter was used to project the light onto the scene. With the lamp and camera on effectively the same optical axis, the Scotchlite appeared to burn like a real flame!

Replacement Animation

Hot glue was used to simulate water in another interesting shot where Toad tries to jog his memory by pouring glasses of water over his head. The water drops were made of clear hot glue and animated by replacement. This was not an obvious use for hot glue, and typifies Matthews' "wiggy" attitude towards materials.

Hot glue, by the way, is a popular adhesive in the film industry. It is very fast and strong when used correctly. Hot glue comes in solid sticks which are melted and applied with an inexpensive electric gun. It may not be the best glue for all occasions, but is indispensible for some situations. The tip of the gun gets very hot, so reasonable care must be exercised to avoid burns.

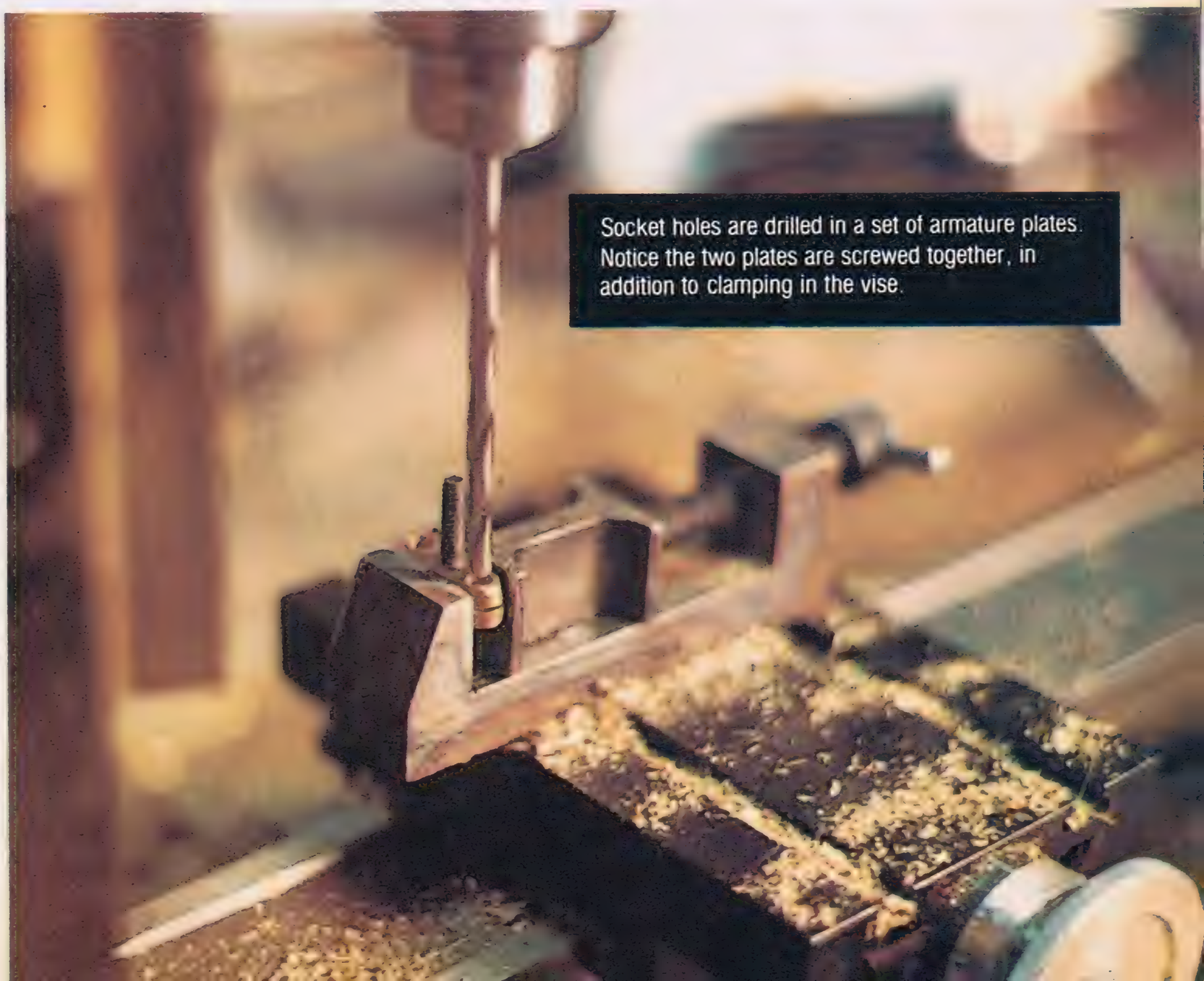
Spinning Stages

Part of Matthews' directing style involves rather elaborate camera moves. To facilitate tracking and panning moves, Matthews built an auxiliary rotating stage to fit on top of a regular stage. The rotating stage consists of two four-foot plywood boards held together by six-inch struts. This open-sided box was set on a surplus bearing. The whole arrangement resembles a giant Lazy Susan. An indicator arm is attached to the lower level to permit calibrating the rotation.

Toad's house, one of the major locations in the film, was expressly designed for the rotating stage. The house was centered on the stage and designed to break away. The roof and walls were made of wood. They were registered and attached together with pins and screws. This arrangement gave complete freedom of camera movement within what appears on screen as a confined space.

A variety of materials were used to finish the house. The exterior walls were

(continued on page 66)



Socket holes are drilled in a set of armature plates. Notice the two plates are screwed together, in addition to clamping in the vise.

Doug George:
The Man With a Thousand Faces

By JOHN CLAYTON

PHOTO: JOHN CLAYTON

Above: A very small part of Doug George's collection of clay character heads.

Every year, the annual CINEMAGIC/SVA Short Film Search show is a very special affair that showcases promising young talent. One of the most interesting aspects of the event takes place after the show when the winners and celebrity guests greet the audience at a wine and cheese reception. Although celebrities like this year's M.C. Keir Dullea and guest Isaac Asimov—and the winners themselves—are all fascinating people, some of the most interesting people you're likely to meet at our after-show reception are just members of the general audience. Aspiring filmmakers, makeup and special effects artists bring their portfolios to the show to bring themselves to the attention of the well-connected celebrities—and especially to the editors of CINEMAGIC. It is both exciting and flattering to have so many talented people vying for your attention.

A 20-year-old sculptor and filmmaker named Doug George was among last year's group of portfolio-toting artists. His was by far the most original portfolio—he was carrying a couple of clear plastic fishing tackle boxes filled with dozens of tiny clay faces of every imaginable type of character. Crowds gathered around him to view his bizarre creations. We exchanged phone numbers and Doug made several subsequent visits to the CINEMAGIC office—each time bringing new boxes of his thousands of clay characters with him. He showed me a couple of his old Super-8 films and we talked about how he got into sculpting clay characters.

"When I was about three or four years old I started experimenting with clay," Doug begins. "By the time I was six I had already made a whole mad scientist laboratory filled with clay props and characters. I've never stopped sculpting since. By now I have sculpted thousands of characters, but I only have between four and five hundred because I keep recycling the clay to make new characters."

The vast majority of Doug's characters strongly resemble cartoon characters, "My strongest influences are several comic artists," Doug explains. "Some of my characters are styled after comic characters created by Wallace Wood—a comic artist who worked for *Mad* magazine in the 50s. Wood's work has also appeared in *Creepy* and *Eerie*. I used his work for inspiration and took the basic character a little further with little touches of my own. I have also been strongly influenced by comic artists Richard Corben and Basil Wolverton—two underground artists whose work I really admire.

"I am constantly sculpting," Doug admits. "I take a hunk of clay and a sculpting tool virtually everywhere I go. It takes me about ten minutes to sculpt a basic character. Characters that are very finely detailed take much longer. Such details as

Above: Doug George with one of his full-body clay characters. **Right**: Doug's troll monster doesn't look like a very friendly fellow. Doug has dozens of full-body characters.

graduated flesh tones, teeth, detailed eyes and hair—for which you have to roll the separate strands—are time consuming.

"My basic travelling clay is Crayola, which is very easy to work with, but only comes in a limited range of colors. I mix the colors together to create my own new ones. Crayola used to be a much better clay, but they changed the formula about two years ago and now it's not as soft and pliable as it used to be. It is still a good clay for animation. Other clays that I like to work with are Fimo—which is made by Eberhardt Faber—and Caran d'Ache. Roma Plastillina is also a good modelling clay. For the fullest range of colors and tones, it is best to melt the clay down and dye it yourself. I did this with Sculpey — which you have to dye because it comes in one color—and I was very pleased with the results. You can bake Sculpey to make your characters permanent. Jimmy Picker gave me a hunk of Colorform clay, which is probably the best clay available for animation, but it is not available in the U.S. and I can't get my hands on any more of it." (See my article about Jimmy Picker in CINEMAGIC #27).

"I usually use only one very fine sculpting tool," Doug reveals. "It is just a basic, plastic modelling tool available at most art supply stores. I work a great deal of the detail with just my fingers.

"One of the main problems I have with my work is that most of the clay I use is very soft and my characters are very fragile and consequently they are not permanent works of art. The clay has to be somewhat malleable for animation, but the characters do not hold up very well over time and they have to be handled very carefully. I recycle a great many of my characters to save money on clay and to keep practicing my sculpting, but when I come up with a character I really love I want to make it a permanent part of my collection. I have just begun experimenting with mold making so that I can make more lasting, latex versions of my favorite characters. I also want to get into animating latex characters with armatures. Makeup artists Peter Montagna (who works for *Saturday Night Live*) and Arnold Gargiulo (whose work appears in John Dods' articles in CINEMAGIC #'s 17 & 18) have been very helpful to me and have answered many of my questions about mold-making techniques. Although I want to experiment with making Ultracal molds and latex characters, I still love animating clay and working directly with clay.

"One of the main problems with animating clay is that the characters have to be stocky or slightly fat in order to be stable enough to stand up on their own," Doug relates. "I want to have total controls over how my characters look and not be limited to fat-looking characters. I am trying to find a way of totally controlling the look of the characters without resorting to abandoning clay for the more controllable approach of molding latex characters. Another problem I have had is my wire armatures breaking through the clay. I find that dressing the characters in cheap, toy clothes for action figures such as G.I. Joe dolls will help to hide the armature if it happens to break through during a shot. I have made about 80 or 100 12-inch, full-bodied characters, but I have recycled many of them for the clay."

Doug is also a talented musician. He plays keyboards and writes his own music. I had the opportunity to hear him play when one of the assistant editors brought a Casio Keyboard into the office during one of Doug's visits. "One of my favorite

(continued on page 51)

PHOTO: DOUG GEORGE

A moon-walking monster is featured in one of Doug George's clay-animated films.

Hammond and Davis Makeup Effects

"Where fantasy becomes a three-dimensional reality"

By JOHN DODS

"Womens' lib *has* progressed a little!" says Diane Hammond, explaining why her name preceeds that of her male partner on their new business logo. Hammond and Davis is a new makeup-effects company based in Washington, D.C. Diane Hammond and her partner Tim Davis are now engaged in their first professional forays into special-effects filmmaking after years of distinguished enterprise in amateur filmdom.

"We are doing makeup prostheses, puppets, effects-makeup, foam body-suits, and special props," explains Hammond. "We recently completed a mechanical head for the film *A Gift for Toby*," a short film lensed in Maryland. "The head has cable-control and bladder functions. We also worked on the sci-fi feature film *Design 2084*—an independent production; we had to build 'fetuses' and cloning tanks. I generally handle most of the mold making and foam running," says Hammond, "Tim does most of the design work, and sketches. We both sculpt and work on the internal mechanics.

The Early Years

For years the 29-year-old Hammond was a familiar face around the annual Balticon sci-fi film conventions. The face, however, was seldom her own, as she—together with friends—donned costume and prosthetic disguises to circulate through the crowds, providing an appropriately otherworldly atmosphere. Rather than reapply the prosthetics daily—a several hour process—Hammond kept them on for the entire weekend, sleeping and eating in the porous rubber face [this is *not* a recommended practice].

"I was always fascinated by makeup as a kid," says Hammond, "Watching *Frankenstein* and *The Werewolf of London* and wondering 'How did they *do* that?' I started fooling around with makeup when I was 16. The two movies that really spurred my interest came out the same year: *Planet of*

PHOTOS: KURT REICHENBACH

Diane Hammond demonstrated her makeup skills for *Monsters, Magic, and Makebelieve*, a TV documentary aired in the Washington, D.C. area.

Tim Davis won first place in a recent Balticon costume competition with his recreation of "Jabba the Hut".

the Apes and *2001*. As a result, my first makeup experiments were apes." Hammond widened her knowledge of makeup techniques over the years by long-distance communication with other makeup artists. "I had the opportunity to talk to Dick Smith a couple of times as well as to Tom Savini, Stan Winston, Richie Alonzo, and Arnold Gargiulo. There is always something that one artist will know that you don't know and one thing that they won't know that you can pass on to them; it's a marvelous way of exchanging information.

"I've never had any negative comments about my being a woman working in this field. Often when I'm talking shop to men in the business, they're fascinated that it's a *woman* they're talking to because we're still a rarity in the field."

Hammond and Davis became proficient at winning prizes in the makeup competitions and costumes contests in their area. Last year Tim Davis won first place at Balticon for his life-sized recreation of "Jabba the Hut." This followed his win of the previous year for his "Gammorian-Pig-Guard." Together Hammond and Davis won both first *and* second place in the FANGORIA/20th Century Fox *Quest For Fire* caveman makeup contest.

Before their professional association was bonded, Hammond and Davis worked together on area film projects like Mark Chorvinsky's *Strange Tangents* (see FANGORIA # 37). Says Hammond: "We did the melting effects in the scene where the 'Master' cnanges into a jelly-like

PHOTO: CURTIS SPONSLER

Diane Hammond and Tim Davis demonstrate a *Planet of the Apes* makeup.

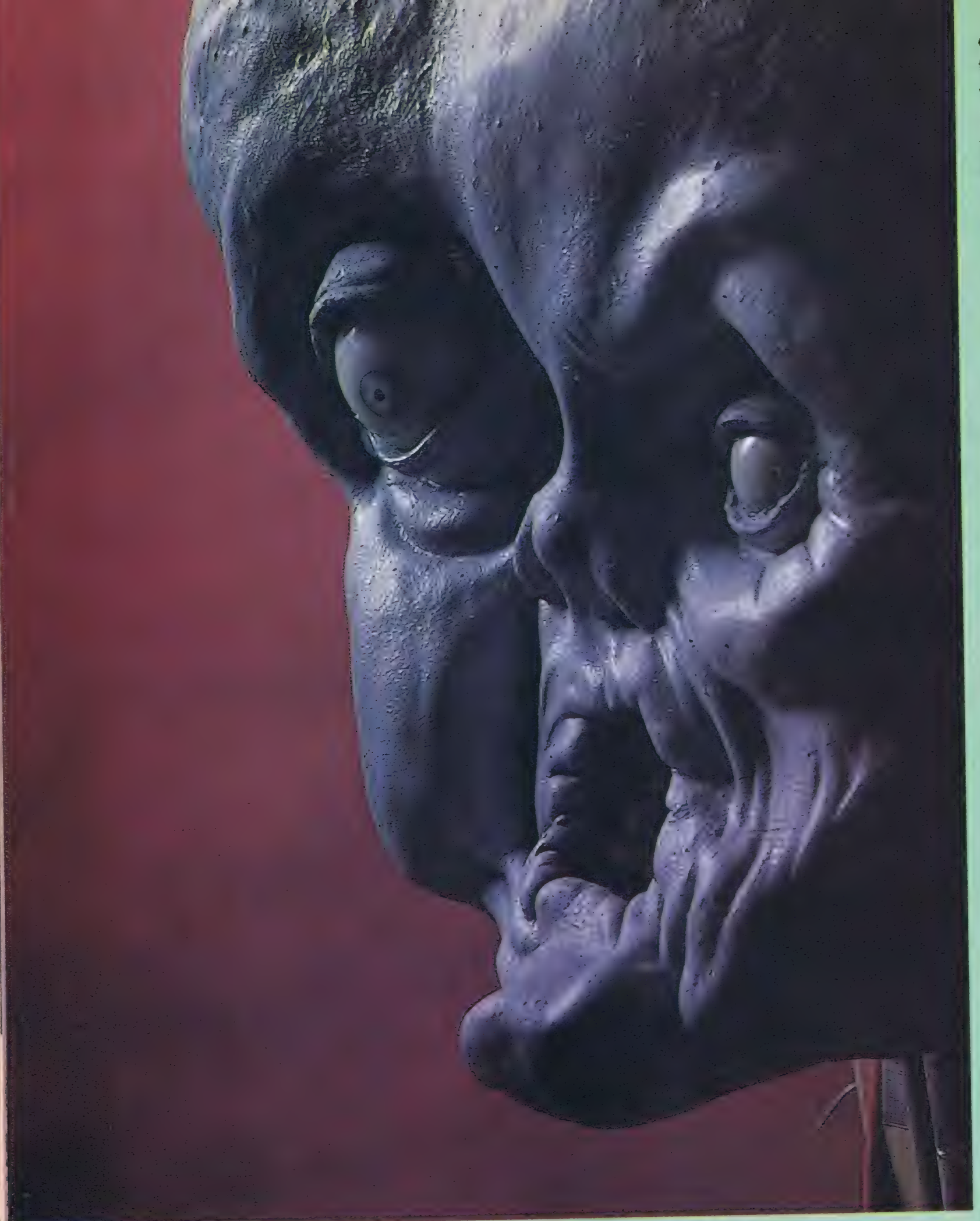


PHOTO: KURT REICHENBACH

A bizarre makeup creation created by Hammond/Davis for the short film *Strange Tangents*. Front projection material in the eyes and mouth provided a weird, otherworldly glow.

creature. To create the effect, transparent Plastisol (grade #4) was cast from a shellac-coated, ultracal mold. "I couldn't find any glue that would work with the Plastisol," recalls Hammond, "until I called the manufacturer. He told me about lasco's #500 vinyl adhesive. That worked." An air compressor was used to alternately inflate and deflate the Plastisol head to impart the effect of undulating movement. At one point over inflation caused the creature's eye to pop out of the head—an unplanned effect that the producer liked well enough to retain in the final cut of the film.

"A Gift For Toby"

Hammond/Davis' recent creation of a strange creature for the short subject *A Gift for Toby* represents their most ambitious undertaking. Four heads were built to represent the bizarre monster: one fully cable-controlled mechanical, one "dummy head" without cable functions, a smaller "plunger head" with large bladder movements, and a stop-motion model.

"The mechanical head was the real challenge," says Hammond, "Because we had never built anything like that before. The lack of symmetry to the head seemed to add to the problems because nothing conventional seemed to quite work with it". The head has cables to control the blink of both upper and lower eye lids, roll the large eye up and down, tilt the head from side to side, pull the lips back, and raise and lower the brow. Bladders are contained in the two top hemispheres of the head, as well as the cheeks and throat, to create pulsations and movement. "Saliva" tubes were placed in the mouth to facilitate the effect of a drooling monster.

Tim Davis constructed a fiberglass underskull using lasco's polyester resin reinforced with several layers of four-once fiberglass cloth. Schwinn Sylmar bicycle cable housing was used with locally purchased steel cable. The cable was attached to the brass eyelid mechanism with stainless steel solder. The cable housing was attached to the fiberglass skull with little clamps purchased from a local Radio Shack dealer. The clamps were screwed into the fiberglass. The cables were controlled using a joystick type of arrangement, with each cable being attached to a control rod that pushed or pulled a color-coded handle; each color indicated the handle's function.

The large bladders in the creature's head were custom made out of latex rubber. Condoms and balloons were used in the cheeks and throat. The bladders were connected to aquarium tubing and inflated by lung power and enema bulbs. During the shooting, the bladders were secured to the fiberglass with super-glue.

Hammond used McLaughlin foam and Bau foams to create four faces for the various constructions. Bau foam was used on the plunger-head "Because of its great elasticity," explains Hammond. "I needed the high stretch that Bau foam could give me. This was the first time I had worked with McLaughlin foam; it has a very tight cell-structure". She attached the steel cables to the rubber facial sections by hot-gluing each cable to a thin plastic tab. Each tab was in turn hot-glued to the foam underskin.

The completed mechanical was operated by seven crewpeople, including cable and bladder operators and a person who controlled an apparatus that caused the head to suddenly leap upwards. All four heads were used to create a mere 14 seconds of screentime.

With their work on *A Gift for Toby* and *Design 2084* completed, Diane Hammond and Tim Davis have busied themselves with a new set of projects. "Now we're building a three-foot-tall mechanical monster for our video demo-reel," says Hamond, "It's going to have radio-controled *orbital* eye movement—movement in all directions. We're also building a tentacled monster; we designed a mechanism that made the tentacles move like an octopus by means of cable controls. We learned so many do's and don't's on *A Gift for Toby*—it was a *great* experience."

Recently Maryland's Channel 20 featured Hammond/Davis' handiwork on the *Creature Features* TV show. The makeup team was also featured on a local TV special *Monsters, Magic, and Makebelieve* —a documentary program covering many areas of special-effects filmmaking. On the show, Hammond was featured in a makeup demonstration during which she was shown transforming a young lady into a female ape. "They 'Chroma-keyed' her right into a scene from the 'Planet of the Apes' TV series!" exclaims the young makeup artist turned TV personality.

Women's lib *has* made some progress. People like Diane Hammond have been pushing it forward. CM

Thousand Faces

(continued from page 47)

things about the film medium is that it allows me to combine all of my talents," Doug explains. "I sculpt the characters, write the script, create the voice characterizations, animate the characters and compose and perform the musical soundtrack. Film lets me funnel all of my artistic energies into one project.

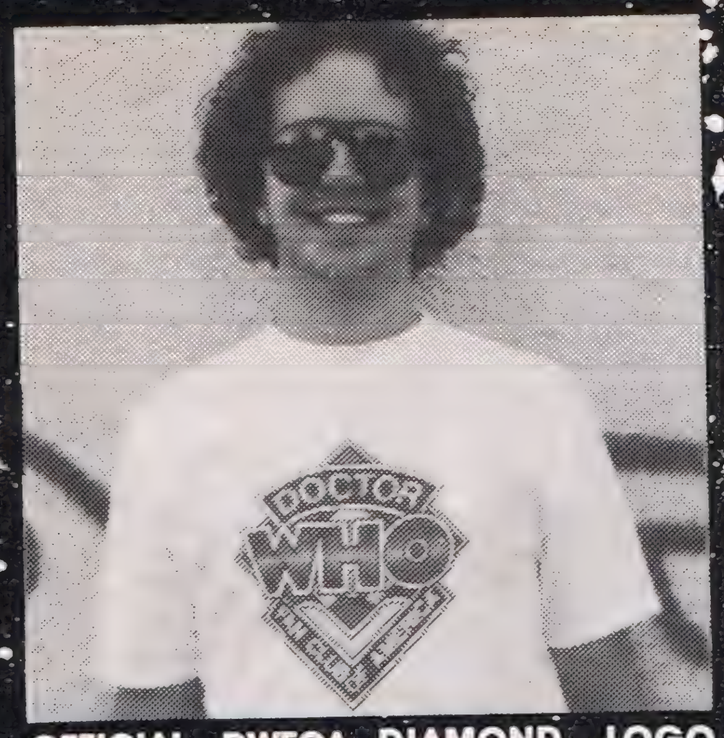
"I started putting my clay characters on film when I was 13 years old," Doug remembers. "I started making little flip-books—which is essentially like making cartoon movies—at the age of ten. I have only made four complete Super-8 films and several other incomplete animated sequences, but I plan on continuing to make films and improve my filmmaking skills. I shot two short 16mm animated sequences when I was a student at SUNY [State University of New York] Purchase. I am out of school now and I recently lost my Super-8 camera, so I've been concentrating on sculpting and developing ideas for future films. I would love to have access to 16m equipment again, so I am planning on attending another school in the near future—possibly the School of Visual Arts here in New York City.

"One of my greatest experiences in filmmaking occurred when I was still in high school," Doug recalls. "I was enrolled in an internship program which allowed me to get academic credit for working at a film studio here in New York. I worked for Robert Grossman on an animated TV commercial. The commmercial was for Carrier air conditioners and it is pretty well-known for its creative use of a replacement animation technique. The commercial shows a guy sitting in his living room sweating in the sweltering heat. Over the course of the 30-second commercial the guy, his dog and his entire living room melt right before your eyes.

"Grossman made molds of the characters and props and cast many copies of each in wax. Each wax casting was individually painted and melted in steps for stop-motion animation. There were 30 or 40 separate castings of the dog for a scene that lasts only a few seconds. The scene shows the dog melting into a puddle on the floor. Each casting had to be hand painted and melted down to the desired degree for that particular frame of the animation sequence. It was a great learning experience to work on a TV commercial when I was only 17 years old. I sculpted a few of the little props seen in the commercial. Grossman's latest work, which New York area readers may recognize, is the series of replacement-animated TV commercials for WPIX radio.

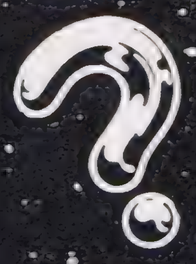
"I hope to break into professional filmmaking and specialize in stop-motion animation," Doug George concludes. "I love sculpting and I want to make a career out of doing what I love." *CM*

DOCTOR WHO MERCHANDISE COLLECTION



OFFICIAL DWFCA DIAMOND LOGO T- SHIRT -#1020: Short- sleeved, 100% cotton, silk-screened in full color. $12.00 (plus $1.90 shipping).

TARDIS ENAMEL PIN #6003: Blue and silver. $4.00 ($0.90 shipping).



? ENAMEL PIN #6005: $4.00 (plus $0.90 shipping).

TARDIS T-SHIRT - #1050: Blue on grey, 100% cotton, short-sleeved. $10.00 (plus $1.75 shipping).

FIVE DOCTORS HOODED SHIRT - #1070: Five Doctors and stars on front, neon logo on back, royal and white on beige, 100% cotton. $20.00 (plus $2.10 shipping).

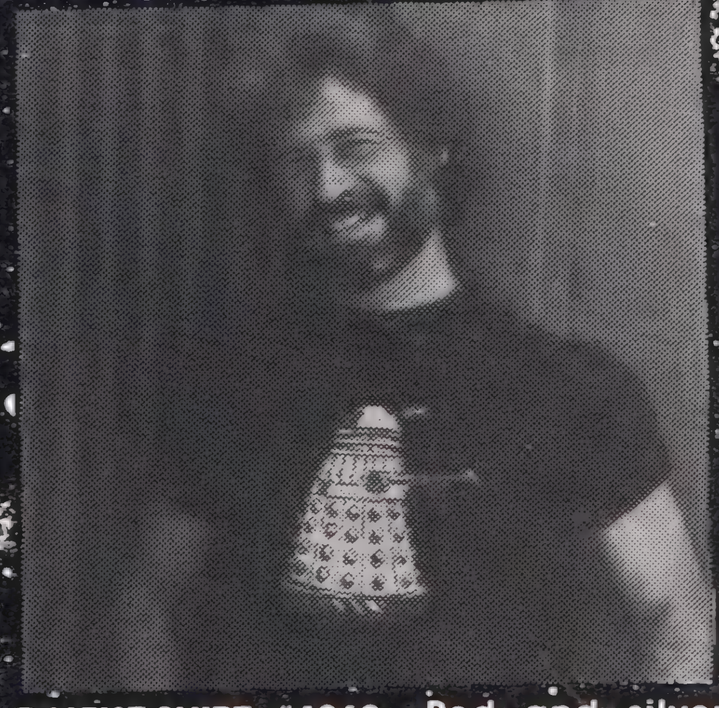
TARDIS MODEL KIT - #7001: Balsa wood, decals, windows, hardware and instructions included. 4" x 4" x 8" finished size. $12.95 (plus $2.25 shipping).

I LOVE DOCTOR WHO T-SHIRT - #1030: Royal neon logo, two red hearts, 100% cotton, shortsleeved. $11.00 (plus $1.90 shipping).

WALLET -#7005: Nylon and velcro $7.50 (plus $1.45 shipping).

KEYRING - #7007: Silver on assorted colors. $1.00 (plus $0.70 shipping).

I LOVE TOM BAKER T-SHIRT - #1040: Brown on beige with red heart, 100% cotton, short-sleeved. $11.00 (plus $1.90 shipping).



DALEK T-SHIRT - #1060: Red and silver on black, 100% cotton, shortsleeved. $10.00 (plus $1.75 shipping).

ORDER FORM

(PLEASE PRINT)

SEND TO:
STARLOG PRESS
475 Park Ave S.
N.Y., N.Y.
10016

NAME _____

ADDRESS _____

CITY _____ STATE _____ ZIP _____

PHONE ( ) _____ AGE _____

SIZE	QTY	DESCRIPTION	#	AMOUNT
		OFFICIAL DWFCA LOGO SHIRT	#1020	
		TARDIS ENAMEL PIN	#6003	
		QUESTION MARK ENAMEL PIN	#6005	
		TARDIS T-SHIRT	#1050	
		FIVE DOCTORS HOODED SHIRT	#1070	
		TARDIS MODEL KIT	#7001	
		I LOVE DOCTOR WHO T-SHIRT	#1030	
		DOCTOR WHO WALLET	#7005	
		DOCTOR WHO KEY RING	#7007	
		I LOVE TOM BAKER T-SHIRT	#1040	
		DALEK T-SHIRT	#1060	
			TOTAL	

PLEASE ALLOW 6-8 WEEKS FOR DELIVERY.

Send cash, check or money order to

STARLOG PRESS®
475 Park Avenue South
New York, NY 10016

DR. WHO COLLECTOR'S EDITION
☐ $16.98

DR. WHO SOUND EFFECTS
☐ Cassette ☐ LP $8.98

GENESIS OF THE DALEKS
☐ $8.98

DR. WHO–"THE MUSIC"
☐ $8.98

SPACE INVADERS
☐ $6.98

BLAKE'S 7
☐ $2.30

DR. WHO PICTURE DISC
☐ $10.98

DR. WHO THEME & THE ASTRONAUTS
☐ $2.30

WHO IS THE DOCTOR?
☐ $2.30

SCI-FI SOUND EFFECTS
☐ $8.98

OUT OF THIS WORLD
☐ $8.98

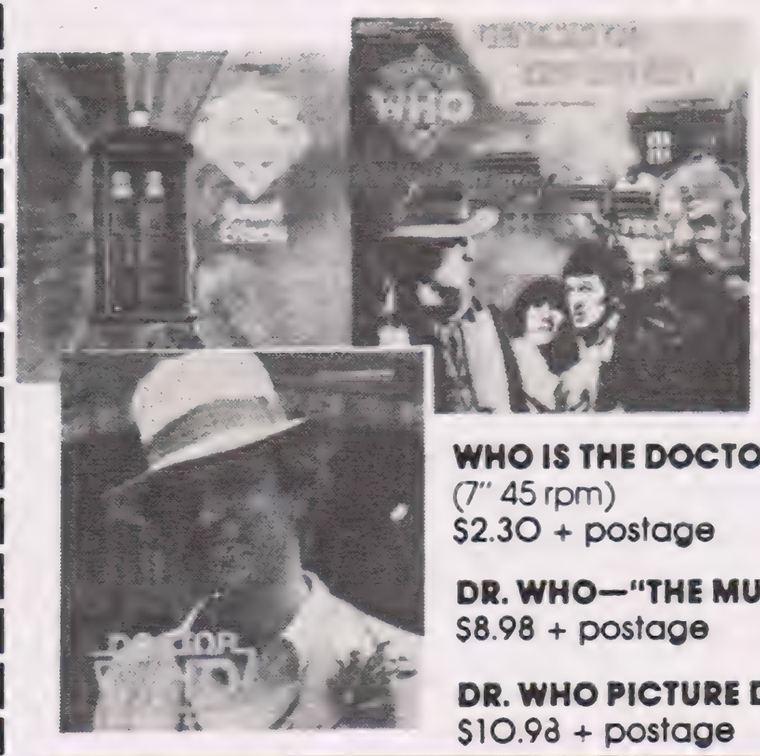
Please include postage and handling
USA $2.00 for 1st record
$1.50 for each additional record
CANADA $2.52 for each record
FOREIGN $4.52 for each record

NAME _____
STREET _____
CITY _____
STATE _____ ZIP _____
Allow 4 to 6 weeks for delivery.

DR. WHO COLLECTOR'S EDITION

A Two-Record Set
1. "Genesis of the Daleks"
2. "Dr. Who Sound Effects"

Plus:
A 45 rpm Bonus Record!
"Dr. Who Theme"
"Dr. Who & The Astronauts"
A Giant Full-Color Poster!
7 Souvenir Photos!
All for only $16.98 + postage



ALSO AVAILABLE!

DR. WHO SOUND EFFECTS
Visit 7 alien worlds!
$8.98 + postage

GENESIS OF THE DALEKS
Starring Tom Baker!
$8.98 + postage

BLAKE'S 7
(7" 45 rpm)
$2.30 + postage

OUT OF THIS WORLD
Atmospheric Sounds & Effects from the BBC Radiophonic Workshop
$8.98 + postage

DR. WHO THEME & THE ASTRONAUTS
(7" 45 rpm)
$2.30 + postage

SPACE INVADERS
Sound Effects from a Fantasy Space Mission
$6.98 + postage

SCI-FI SOUND EFFECTS
$8.98 + postage

WHO IS THE DOCTOR?
(7" 45 rpm)
$2.30 + postage

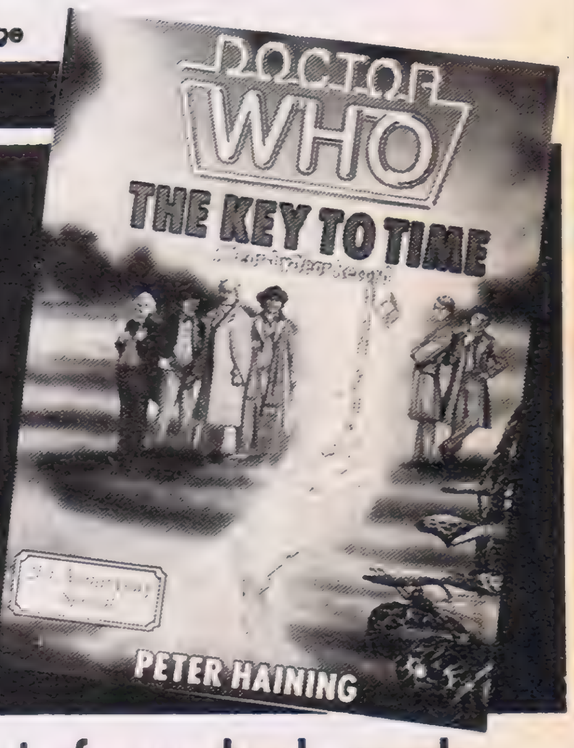
DR. WHO—"THE MUSIC"
$8.98 + postage

DR. WHO PICTURE DISC
$10.98 + postage

THE KEY TO TIME
A Year-by-Year Record of
DOCTOR WHO

The Key to Time marks the program's coming of age—twenty-one years old. Author Peter Haining has adopted the novel technique of exploring the history of the series through key dates in its many life-cycles. He demonstrates—with extensive reference to files kept in the *Doctor Who* Production Office—how the impact of this extraordinary phenomenon has traveled throughout the world. He traces the many changes the series has undergone since the first episode was broadcast in November 1963.

This extensively illustrated special publication, with twenty-four pages of color photographs, is a superb follow-up to the runaway success of W.H. Allen's *Doctor Who: A Celebration*.
Hardcover.
Only $24.95 + postage



DOCTOR WHO RECORDS!

(All records are 12" 33⅓ rpm unless otherwise noted)

BESTSELLERS

Be the first in your galaxy to own a complete set of paperback novels featuring the incredible adventures of everybody's favorite Time Lord.

DOCTOR WHO Books

Please send me the title(s) I have checked below

Starlog Press 475 Park Avenue South, New York, NY 10016

DOCTOR WHO PAPERBACKS - $2.95 + postage

29377 _____ Earthshock
20126 _____ Enemy of the World
29537 _____ Enlightenment
20006 _____ Face of Evil
29510 _____ Five Doctors
29334 _____ Four to Doomsday
20150 _____ Full Circle
21279 _____ Giant Robot
21543 _____ Green Death
20033 _____ Hand of Fear
29676 _____ Highlanders
20131 _____ Horns of Nimon
20009 _____ Horror Fang Rock
20866 _____ Ice Warriors
20077 _____ Image of Fendahl
29617 _____ Inferno
20093 _____ Invasion of Time
20054 _____ Invisible Enemy
20148 _____ Keeper of Traken
20125 _____ Keys of Marinus
29529 _____ Kinda
20147 _____ Leisure Hive
20149 _____ Logopolis
29393 _____ Mawdryn Undead
21455 _____ Abominable Snowmen
20108 _____ Androids of Tara
29342 _____ Arc Infinity
21631 _____ Ark in Space
20104 _____ Armageddon Factor
21295 _____ Auton Invasion
29588 _____ Aztecs
21674 _____ Brain of Morbius
29860 _____ Brain Teasers
21025 _____ Carnival of Monsters
29326 _____ Castrovalva
21471 _____ Cave Monsters
21703 _____ Claws of Axos
20123 _____ Creature from Pit
21316 _____ Crusaders
21498 _____ Curse of Peladon
21463 _____ Cybermen
21332 _____ Daemons
20110 _____ The Daleks
21244 _____ Dalek Invasion Earth
21965 _____ Deadly Assassin
20042 _____ Death to Daleks
20096 _____ Destiny of Daleks
29553 _____ Dominators
20136 _____ Meglos
20132 _____ Monster of Peladon
21690 _____ Mutants
20130 _____ Nightmare of Eden
21252 _____ Planet of Daleks
21682 _____ Planet of Evil
20655 _____ Planet of Spiders
20101 _____ Power of Kroll
21666 _____ Pyramids of Mars
20143 _____ The Quiz Book
20092 _____ Ribos Operation
20061 _____ Robots of Death
21308 _____ Sea Devils
29406 _____ Second Quiz Book
29457 _____ Snakedance
20049 _____ Sontaran Experiment
21033 _____ Space War
20133 _____ State of Decay
20099 _____ Stones of Blood
20059 _____ Sunmakers
21068 _____ Tenth Planet
29385 _____ Terminus
21500 _____ Terror for Autons
21578 _____ Three Doctors
29297 _____ Time-Flight
20023 _____ Time Warrior
21076 _____ Tomb of Cybermen
20068 _____ Underworld
20144 _____ Unearthly Child
20135 _____ Visitation
20082 _____ War Games
20146 _____ Warriors' Gate
29561 _____ Warriors of Deep
21084 _____ Web of Fear
21324 _____ Zarbi
20138 _____ Dr. Who Crossword Book
20139 _____ Dr. Who Programme Guide Volume 1
20142 _____ Dr. Who Programme Guide Volume 2

DOCTOR WHO HARDCOVER

23351 _____ Doctor Who: A Celebration - Two Decades Through Time and Space $19.95 + postage
23283 _____ The Key to Time $24.95 + postage

DOCTOR WHO SPECIALS - $2.95 + postage

20063 _____ JUNIOR DR. WHO AND THE BRAIN OF MORBIUS $2.95
20067 _____ THE ADVENTURES OF K9 AND OTHER THINGS $2.95
21615 _____ THE MAKING OF DR. WHO $2.95
20095 _____ DALEK SPECIAL $2.95
21842 _____ THE DOCTOR WHO DINOSAUR BOOK $2.95

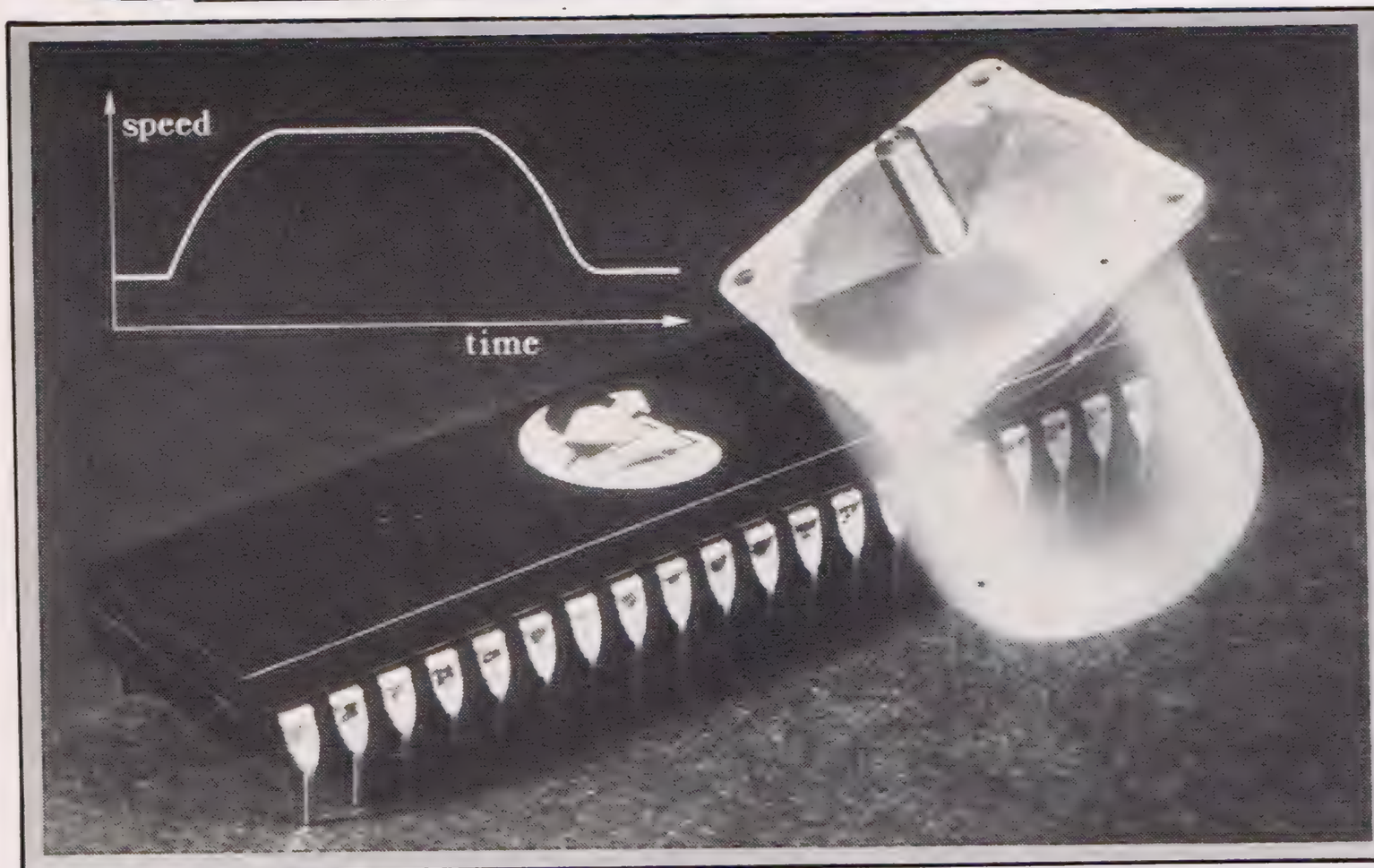
NAME _____
STREET _____
CITY _____
STATE _____ ZIP _____
Please allow 4 to 6 weeks for delivery

USA
1st paperback–$1.25
Each additional paperback–$.75
Each hardcover–$2.50
FOREIGN
Each paperback–$1.50
Each hardcover–$4.50

NEW RELEASES - $2.95 + postage
29780 _____ Frontios
29940 _____ Planet of Fire
29959 _____ Caves of Androzani
29967 _____ Marco Polo
20155 _____ The Twin Dilemma
20158 _____ Awakening
20166 _____ Mind of Evil

I enclose $_____ in cash, check or money order.

GRIP KIT



Motor Controller

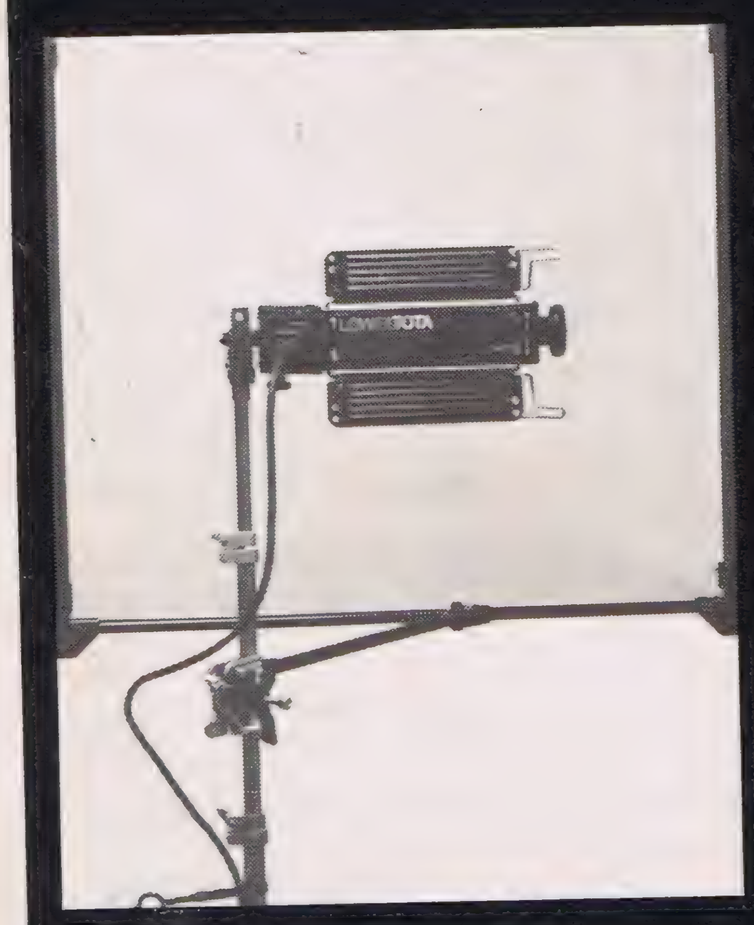
The CY525 intelligent ramping stepper motor controller is a standard 5 vol, 40 pin LSI device configured to control any 4-phase stepper motor. The CY525 will interface to any computer using parallel TTL input and provides numerous TTL input and outputs for auxiliary control and interfacing. The CY525 allows sequences of hi-level type commands to be stored internally in a program buffer and be executed upon command. The TTL outputs sequence the stepper drive circuits that consist of standard power transistors or transistor arrays. The CY525 features the ability to change the stepping rate while the motor is stepping and to take an unlimited number of steps in continuous run mode.

For more information contact The manufacturer Cybernetic Micro Systems, P.O. Box 3000, San Gregorio, CA, 94074. (415) 726-3000

Gitzo Fishpole

The new lightweight, compact Gitzo 564LM fishpole, in charcoal finish, with four black anodized extensions and two soft grips, has a folded length of 1½ feet. Yet it extends to seven feet and is very solid for minimal motions and noise. The four extensions glide smoothly, lock firmly on waterproof nylon sleeves (no metal on metal), and have soft-cushioned locking rings for easy, foolproof handling, without any binding. The 5/8 to 3/8 inch bushing will accept a variety of microphones. Two holes at the bottom and in the last section provide for the running of the microphone cord. Like the five other Gitzo microphone fishpoles, some which extend up to 12 feet, it is covered by full five-year Gitzo warranty buyer protection. List price is $109.95

Lowel Frame-Up



Lowel introduces its Standard Frame-up, a relatively large flag and gel frame that folds up compactly for storage and travel. Standard 20" x 24" (50 x 60 cm) gels can be attached with clips fastened to the frame corners. The gels balance or change the color of the light and reduce or diffuse it, while black and translucent mats can block or modulate light falling on the subject, background or camera.

The Frame-up mounts on any part of a stand with the help of the unique Lowel Lobo, and can be adjusted on every axis. It can go on the same stand that holds a light, reducing the number of stands and shooting space required, without sacrificing light control. When folded, the Standard Frame-up fits in Lowel Tota/Omni cases that hold Omni stands.

A Large Frame-up, 24" x 34" (61 x 86 cm) is also available. It uses the same Lowel Lobo for mounting and folds up to fit in Lowel DP, and some Softlight cases.

For more details, contact Lowel, 475 Tenth Avenue, New York, NY 10018. Phone: (212) 947-0950

Super-8 Widescreen

Filmmakers who really want their audience to *be there* can purchase add-on equipment that will shoot and project their films in a widescreen format.

The accepted amateur ratio is 1.33:1, or you might think of it as a 4 x 3 screen size. Anything wider is widescreen, but for all practical purposes there are two formats currently in use: VistaVision at a ratio of 2:1 and CinemaScope at 2.66:1, (both are trademarked.) Widescreen viewing, compared to normal 8mm viewing, more closely matches human vision because we see our world in the overall shape of an elongated oval on a horizontal plane, not as a 4 x 3 rectangle.

To adapt your filmmaking equipment to widescreen format you need an anamorphic lens, a universal camera mount, a universal projector mount, and, of course, the wide screen. The anamorphic lens, coupled to a universal mount, will attach both to the camera and the projector (the camera when filming and the projector when showing.)

The Elmoscope lens is recommended for the serious movie maker. Its front element is 53mm in diameter and its rear is 45mm. The Elmoscope gives a 2.66:1 ratio.

A popular, less expensive lens, is the Kowa 8Z (front 53mm and rear 45mm). The Kowa will fit almost any movie camera and projector and gives a 2.66:1 ratio.

For the economically minded, there is the Centascope (front 60mm and rear 47mm) it works well with smaller zoom ranges. The Centascope gives a 2:1 ratio.

You can buy your widescreen equipment at Halmar Enterprises, P.O. Box 474, Lewiston New York, 14092. They also sell the Universal camera and projector mounts. Made with durable, lightweight aluminum, and fitted with non-abrasive nylon screws, they won't scratch your lens casings.

Finally, they have the material and instructions to make your own widescreen quickly and economically. Then its on to widescreen shooting and viewing, where the illusion is worth the price.

—Max Rottersman

FESTIVAL NEWS

Independent Focus

Independent Focus, the longest-running and most popular broadcast forum for independently-produced films and videos, returns for an eighth season on Public Television. The 13-week series airs sunday, at 11 p.m.

A total of 29 works by independent producers, including documentaries, dramas, shorts and animations, is featured in the 1985 season. The total marks the largest number of works ever featured in the *Independent Focus* series.

A five-member advisory panel of independent producers, programmers, film and videomakers worked with *Independent Focus* executive producer Marion Swaybill and staff in selecting this year's finalists.

"*Independent Focus* is a true celebration of the American film and videomaker," notes Ms. Swaybill. "This year, the panel was faced with an especially great challenge because of the number of exceptional and important films submitted."

Among 500 submissions this year, a record number received by the series, the programs selected for broadcast on *Independent Focus* reflect a diversity of subjects, forms, and styles.

Programs in the series include examinations of political and economic issues in Central America, a history of the Tennessee Valley Authority, an experimental documentary about an atomic plant, an artist who creates with atomic rubbish, three films dealing with different aspects of Vietnam, female relationships, new dramas, comedy, and animation, among others.

Independent Focus finalists were selected by a panel of independent producers and film programmers which included Larry Kardish, Margot Lewitin, Bienvenida Matias, Clayton Riley and Deborah Shaffer.

Special production assistance for *Independent Focus* is donated by Du Art Film laboratories and Du Art Video. Additional funding is provided by Members of Thirteen, New York City's Public Television station.

Independent Focus is a production of Thirteen's Program Acquisitions Department, committed to the acquisition and broadcast of quality programs. Executive producer: Marion Lear Swaybill. Coordinating producer: Emily Eiten.

Los Angeles Animation Celebration

The First Los Angeles International Animation Celebration will debut September 25-29, 1985, in commemoration of the United Nations' declaration of 1985 as the "Year of Animation" and the "Year of Youth."

This premiere event is presented in cooperation with ASIFA Hollywood and the American Center of Films for Children. The Festival will showcase the best of both classic and contemporary animation.

A panel of world-renowned animation experts will preside over this international competition, presenting cash prizes and awards to the best from categories including, but not limited to: shorts (grouped according to running time), commercials, public service announcements, computer animation, rock videos, and animation intended for children.

The festival is open to films in 16mm and 35mm, and videos in 3/4" and 1/2" (US Standard) VHS and Beta. The deadline for the return of entry blanks and entry fees is July 20, 1985, and all films and videos must be received by August 11, 1985. All entries must have been completed after January 1, 1983.

Films and videos entered out of competition will be showcased nightly along with a full schedule of special tributes, artist profiles, and works created with the latest innovations in the art form, including computer animation and animated rock videos.

For entry forms and further information, contact: ANIMATION, 2222 So. Barrington, Los Angeles, CA 90064; or call, (213) 473-6701.

1985 Film Search

Kerry O'Quinn, publisher of CINEMAGIC, has confirmed the dates for the 1985 CINEMAGIC Short Film Search. The deadline for entries is October 1, 1985. Entry forms and contest rules are in preparation as we go to press. For your copy send a stamped, self addressed, long (#10) envelope to: CINEMAGIC Film Search, 475 Park Avenue South, New York, NY 10016.

ART © 1985 LOS ANGELES INTERNATIONAL ANIMATION CELEBRATION

Atlanta Fantasy Fair

The 11th annual Atlanta Fantasy Fair, to be held August 2-4, 1985, at the Omni Hotel and Georgia World Congress Center, will give aspiring filmmakers a chance to exhibit their work. The Amateur Film Festival will be held Friday afternoon, August 2. Awards will be given in both Super-8 and 16mm divisions. Judges include two-time Academy Award nominee Jim Danforth. Films must be fantasy-related, but can be animation, live action, special effects, or anything else you can dream up, as long as it's in good taste. No separate tape-recorded sound or magnetic sound, though silent films are allowed. We prefer entries to be 10 minutes or less, though we will take films up to a maximum of 30 minutes. Registration will be required in advance. Open only to members of the Fantasy Fair, though out-of-town members who cannot attend may send their film with an attending member. No mail-ins accepted. Membership rates are $21 until 6/28/85 (discounts available for clubs & families) and $28 after that. For more information, write: Atlanta Fantasy Fair, P.O. Box 566, Marietta, GA 30061 (enclose SASE) or call (24-hours): 404-425-8095 (no collect).

Film Festival Guide

July Deadlines

Northwest Film & Video Festival

N.W. Film Study Center
Portland Art Association
1219 S.W. Park Ave.
Portland, OR 97205

Eligibility: Restricted to residents of OR, WA, ID, MT, AK, B.C.
Month Held: August
Location: Portland, OR
Gauge of Film: Super-8, 16mm, 35mm

International Super-8 Festival

Super-8 International
c/o Metro Media
1037 Commercial Dr.
Vancouver, B.C. V5L 3X1 Canada

International Festival Of The New Super-8 Cinema

A.P.A.R.T.A.D.O.: 61482
Cahcao 1060
Caracas, Venezuela

International Super-8 Film Festival of Sao Paulo

ACAO Super-8
Centro De Estudios Promocoes de Cinema
Rua Estados Unidos, 2.240
Sao Paulo, Brasil
Length: 30 minutes max.

Compiled by The Independent Producer, *published bi-annually by Small Format Audio Visual, Inc., 95 Harvey St., Cambridge, MA 02140. Reprinted by permission of the publisher.*

Acrobatic Animation

Aerial braces can make your animation models fly, jump, run, flip and perform all sorts of other graceful movements.

By TED RICHARD RAE

PHOTO: MARK SULLIVAN

Aerial braces are necessary to re-create such classic scenes as this from *King Kong*.

The term "aerial brace" was coined several years ago by Mark Wolf, an amateur animator from Iowa. Apparently there was no standard name before then. Jim Danforth once told Mark that the devices were simply called "flying rigs" and the like.

As with most effects devices, the use of an aerial brace is most successful if it goes unnoticed. It is not limited to flying creatures and can also be used to support miniature set pieces, creatures required to fall or jump, objects thrown or kicked, or to support a creature supposedly swimming freely underwater.

When most creatures *run*, all of their feet leave the ground simultaneously making it necessary for the model to be aerially braced throughout the entire running sequence. A good example of this is the run cycles of the Eohippus in *The Valley of Gwangi*. The result is so pleasing that it makes one wish that Harryhausen could be given more time to utilize the technique further.

Barring the elaborate braces constructed by professionals, which encompass all possible movements, a variety of devices can be constructed to meet the needs of individual shots. This is illustrated in the words of special-effects artist John Dods, "My usual procedure is to do a storyboard shot by shot and then construct, set up, or devise a method to create the desired effect for *each shot separately*. This means that instead of trying to construct an aerial brace that will fly the desired object every conceivable way—one that would be terribly complex—I will make many devices, each device tailored only to the requirements of the one shot."

Easy Alternatives

Some alternatives to building an aerial brace are the use of photo cutouts on glass, a stationary model and moving background, or simple support by threads.

Photo cut-outs work very well for aircraft of all types, such as airplanes, saucers and spaceships. This requires photographing the model, being careful to match the lighting for the shot, having a quality clear print made from the negative or slide, carefully cutting the background away from the model and coloring the white edge of the photo black. The photo cut-out can now be animated on glass against any background (real, miniature set, or rear projected image) as long as the lighting matches that of the cut-out. There are no wires to conceal, although unwanted reflections on the glass should be avoided.

The use of a stationary model and a moving background needs little explanation. A model can be affixed to the tripod, by some off-screen method, in front of the camera and can then be panned against a real sky with the camera.

Combinations of these methods can also achieve fine results. A photo cut-out on glass against a receding image on a rear projection screen produces the successful illusion of the camera speeding through the sky tracking a flying saucer, spaceship, superhero or whatever.

If these methods do not fit the requirements of your aerial brace sequence, then the Simplified Aerial Brace may be the answer.

Simplified Aerial Brace

The Simplified Aerial Brace (here-after referred to as the S.A.B.) is capable only of two-way movement ("North to South" movement as opposed to the "North to South" *and* "East to West," such as is possible with more elaborate designs).

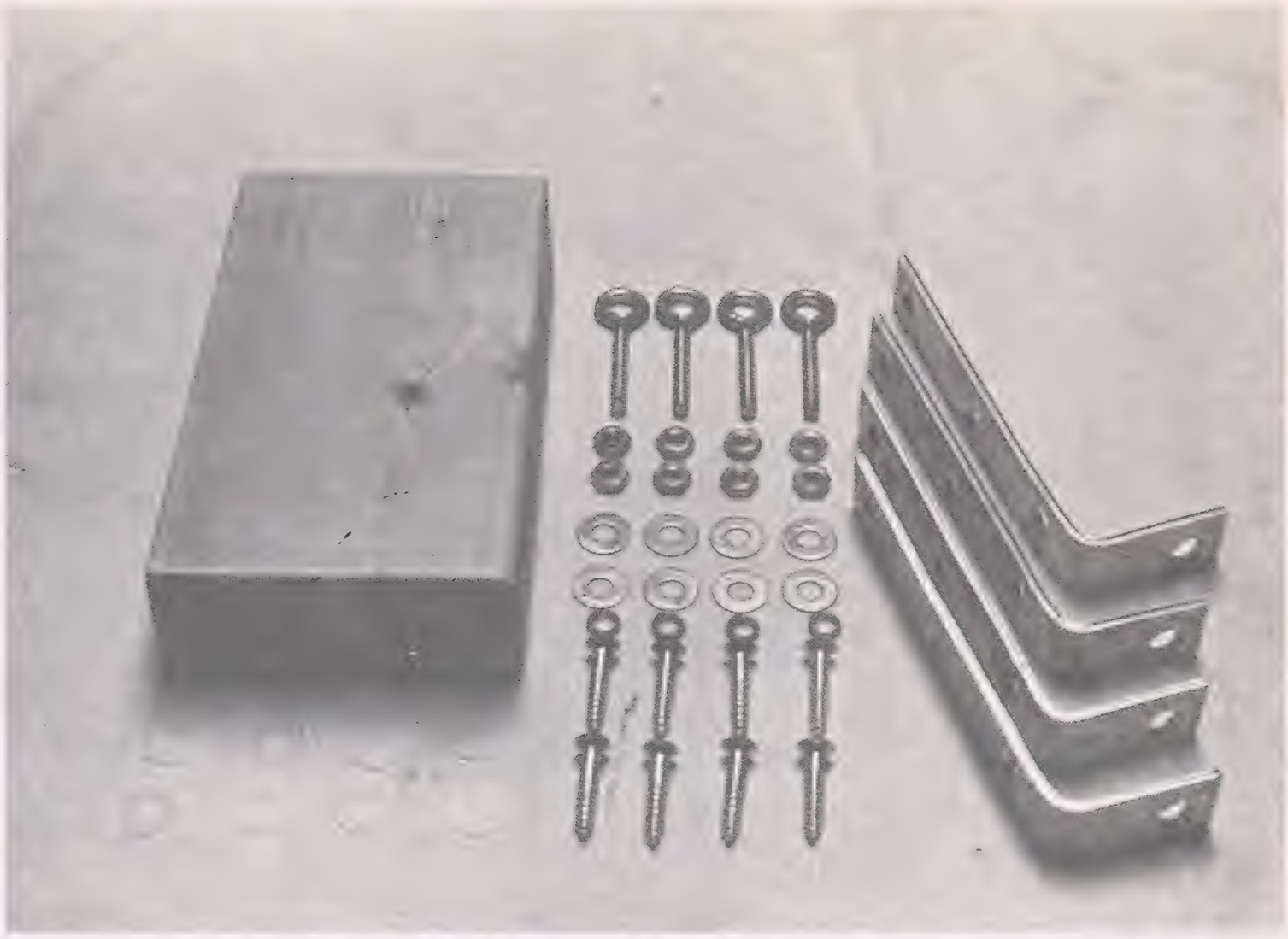
Basically the S.A.B. consists of a 2-by-4 runner. Suspended from the platform are four lines, which in turn support the animation model, or whatever is being aerially braced.

Materials needed for the construction of the S.A.B. are: a wood 2-by-4, four metal 90-degree angle hardware brackets, eight wood screws, four eyebolts and nuts to fit, eight regular washers to fit the eyebolts and nuts, eight urethane washers, four split-ring lock washers, epoxy or "super glue" and some type of line of your choice.

To construct a S.A.B., obtain a 2-by-4. (It may be any length desired.) The longer the 2-by-4, the longer the effective field of movement. Also, when selecting the 2-by-4, remember that it should be as straight and free of knots as possible.) Cut a six-inch block off the end. This will be the sliding platform that rides along the top of the runner 2-by-4. Once this is done, sand the bottom of the platform and the top of the runner as smooth and straight as possible. It may also be desirable to paint with enamel and then wax each of these surfaces to help eliminate snags and reduce friction.

Take the four metal 90-degree angle hardware brackets, and using two wood screws for each bracket, affix one to each of the four corners of the top of the sliding platform. (Actually, as many brackets—and thus as many lines—as the size of the platform will allow can be installed.) Place the platform on top of the runner and move it back and forth over its entire length, making sure that the brackets do not snag on any splinters or knots. It may be necessary to adjust the brackets to a happy medium. If not already pre-drilled, drill a hole about ¼-inch from the bottom of each bracket to accommodate the eyebolts.

Drill a small hole in the center of the threaded end of each eyebolt to accommodate your choice of support line.



Materials needed to build the Simplified Aerial Brace: four 90-degree angle brackets, four eyebolts, eight nuts, eight regular washers, eight lock washers, eight plastic washers, eight screws and a 2-by-4 block.

The assembled sliding platform of the Simplified Aerial Brace showing the proper position of the metal 90-degree angle brackets on the block.

PHOTOS: TED R. RAE

PHOTO: TED R. RAE

The support spindle assembly of the Simplified Aerial Brace showing the correct order of nuts and washers.

These eyebolts will act as the spindles for the support lines. Take four of the regular nuts and glue one (with epoxy or one of the "super glues" presently on the market) to each of the eyebolts somewhere around the upper third of the threads.

After these have dried thoroughly, place a regular washer against this. (If urethane washers cannot be found in a hardware or plumbing supply store, you can cut them from an old plastic milk jug or bleach bottle.) Place the eyebolts through the hole in the bracket and place another urethane washer against the open side (one of the split-ring lock washers) and another regular nut on top of it all. This assembly allows the eyebolts to turn against the brackets on the urethane washers.

The split-ring lock washers exert enough pressure on the regular washers to keep them tight against the urethane washer and enough backwards pressure on the threads of the nut to keep it from becoming loose. If adjusted correctly, the whole assembly will move with relative ease and should never loosen up. Now repeat this procedure for each of the other brackets and add the support line of your choice by inserting it through the hole in the end of the eyebolt, tying it to itself so that it won't roll off the end while being drawn up.

Slide the platform over the end of the runner and secure the runner by attaching it to basement ceiling beams, two

PHOTO: TED JULY

The completed Simplified Aerial Brace rigged with suspended spider creature ready for filming.

light stands, or to two step ladders. It does not matter how you support the runner as long as it is steady, level, leaves room for the platform to slide and spans the set up. You may also want to put calibration marks on the runner to measure the amount of movement from frame to frame.

The S.A.B. is desirable because it is inexpensive (the materials should not cost over ten dollars,) does not take long to construct, and is easy to set up and store. However, its drawbacks are that it is only capable of two-way movement and does not allow the object being aerially braced to turn back in the opposite direction without detaching the support lines.

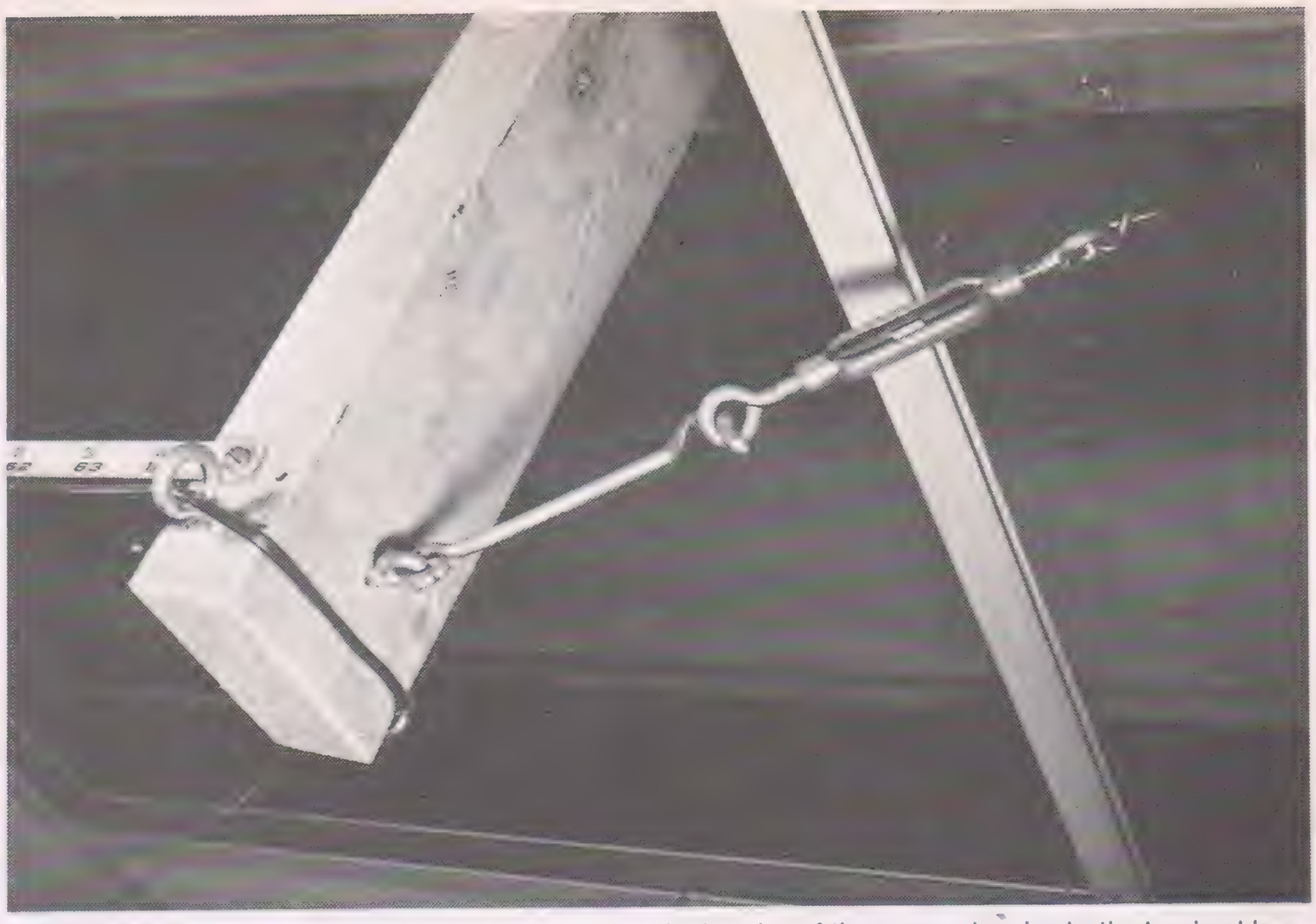
Line Suspension Brace

The Line Suspension Aerial Brace (hereafter referred to as the L.S.A.B.) is the design I personally employ. The only real advantage of the L.S.A.B. over the S.A.B. is that it allows the model to turn around in mid-air with out reattaching the support lines. Also, I have found that the L.S.A.B. is capable of more precise movement than the S.A.B.

I have constructed only one L.S.A.B. and some of the materials used may not be available to all. So instead of trying to standardize the construction procedure (which would be almost impossible), I will recount the steps that I took to construct my brace. The finished brace has most of the snags ironed out and has performed quite satisfactorily in all instances.

At first, the idea of the L.S.A.B. was basically that of a nylon cord stretched around two 2-by-4s nailed to basement ceiling beams, and a small piece of plywood with cup hooks on its four corners that rode on the nylon cord. Threads that support the model were to be attached to the model.

Originally no support line spindle device was considered at all. However, as the brace evolved from the panning stage



The end of the Line Suspension Aerial Brace showing the location of the screen door hook, the turnbuckle and the screw eyes in the 2-by-4.

to actual construction, it gradually encompassed more features (and hence more work) than first anticipated.

I had first considered nailing the 2-by-4 (on which the suspension lines are stretched) to the ceiling beams in my basement. However, this was not possible since my basement has a suspended ceiling and the brace had to extend *below* the ceiling. The answer was to have the device capable of swinging up inside the ceiling, out of the way, when not in use.

Having decided how far down from the seven-foot ceiling I wanted the brace to hang (one foot) and the length of its field of movement (five feet), I picked a spot in the middle of the basement. This way, miniature sets could be erected in relation to the brace since its location would be permanent.

I then found two 18-inch-long 2-by-4s, layed them on sides and drilled a hole through each to accommodate a ½ x 6-inch bolt. Two identical-sized holes, five feet apart, were then drilled through the ceiling beam and each 2-by-4. While tightening, I adjusted them so that neither of the 2-by-4s would wobble, but would still swing up out of the way inside the suspended ceiling. The extra six inches of 2-by-4, three inches on each side of the bolt, eliminated any unwanted side to side movement.

To keep the suspension lines from sagging under the combined weight of the platform and the model I decided to install turnbuckles (most commonly used to straighten screen doors) at each end to stretch them taut. Since the turnbuckles would have to be detachable, to permit the 2-by-4s to swing up into the ceiling, I put a large screen door hook in the center, at the bottom, of the back side of each of the 2-by-4s. To anchor the turnbuckles I simply nailed two small pieces of wood to the ceiling beam about 18 inches back from the bolts on each side, and put a screweye in each.

I cut ordinary coat hangers to obtain two 12-inch pieces of heavy duty wire (I had found previously that lighter wire stretched or unraveled due to the tension). I anchored each end of the turnbuckles to the ceiling beam by twisting the ends of the coat-hanger wire through the screweyes in the small wood blocks and one end of each turnbuckle.

Although not absolutely necessary, I put two screweyes in the sides of each 2-by-4 to serve as suspension line guides. My reasoning was that they are inexpensive and prevent the line from slipping off the ends of the 2-by-4 accidentally. I later found an added advantage because the screweyes could be turned slightly to raise or lower the ends of each of the suspension lines to keep them level.

After testing several different types of

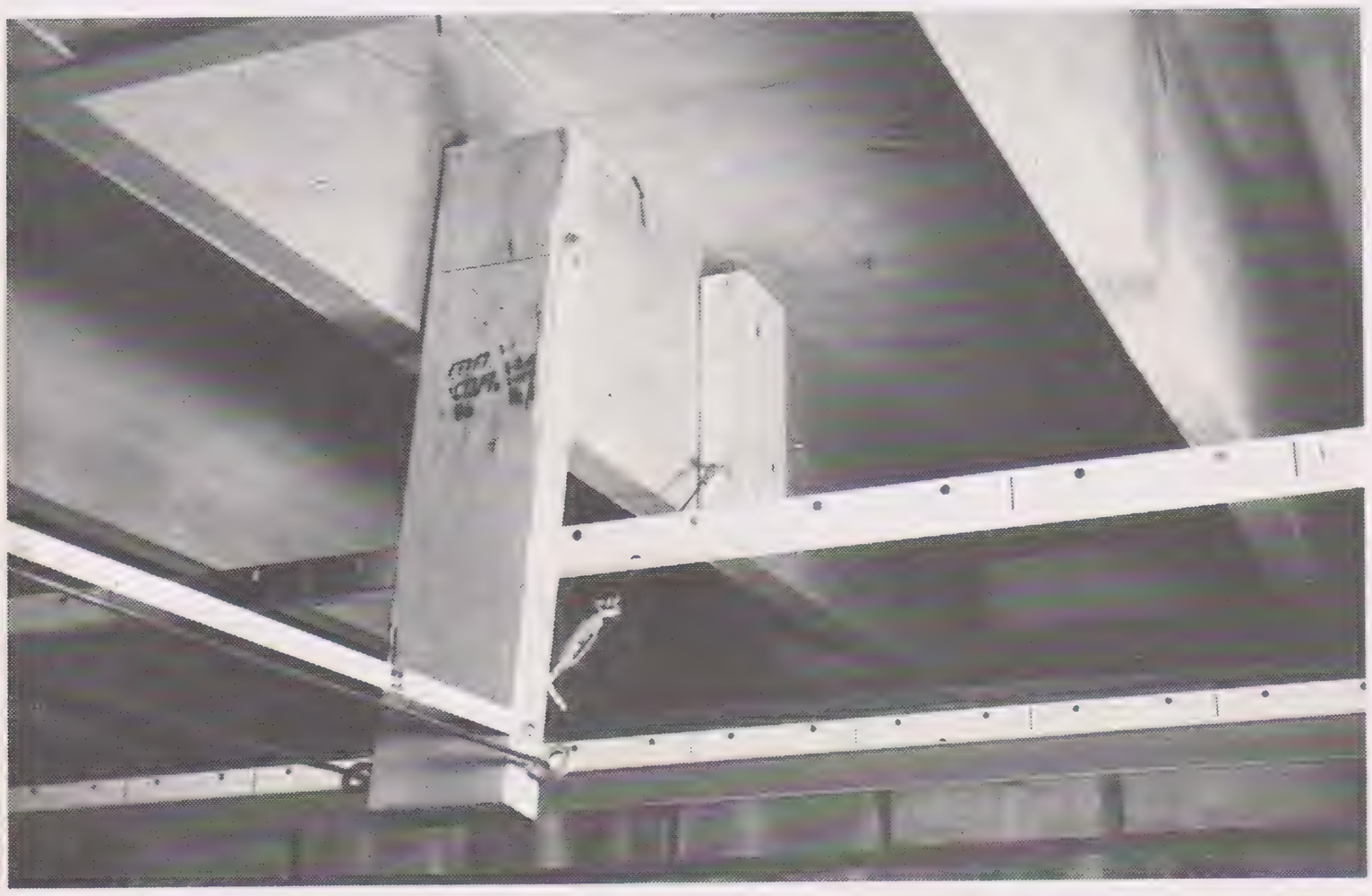


PHOTO: TED JULY

Front angle view of the Line Suspension Aerial Brace showing the location of the bolt, turnbuckle, anchoring 2-by-4, wire and screw eyes.

cord and line to serve as the suspension lines, I chose plastic-coated three-strand wire clothes line. According to the manufacturer, it is not supposed to stretch or break, and so far I have found this to be true.

I took a 14-foot piece of the clothes line (twice the length of the brace and an extra 2 feet to tie with) and looped an end through each of the screweyes. At this point I loosened the turnbuckles to their fullest extent by unscrewing them as far as possible without coming apart. I connected the screen door hooks to each of the turnbuckles and pulled the 2-by-4 as close together as possible. I inserted the clothes line through the two remaining screweyes and tied the ends of it as tightly as possible. I inserted a thin screwdriver in the middle section of each turnbuckle, and used the leverage to tighten it up. I repeated this until the suspension lines were taut enough that when plucked with the finger they sounded like a low-tuned guitar. Once tightened up in this manner, the suspension lines will carry up to three or four pounds without sagging. If the lines vibrate during animating, I merely wait for them to stop (which usually takes about one minute), since they will stop in exactly the same place every time.

Knowing that a calibration system would be very helpful while animating, I decided to affix some kind of ruler to the 2-by-4s. Fortunately, my father happened to have the tape ruler out of an old tape measure, which was broken. I drilled a hole in one end of it to accommodate a small wood screw to anchor the rule of a 2-by-4. At the other end, I drilled several holes to allow for the variance in the tying of the suspension lines every time, since the tape would have to be stretched between the 2-by-4s along with the lines. Much trial and error was necessary to get both lines and the tape taut each time the brace was set up.

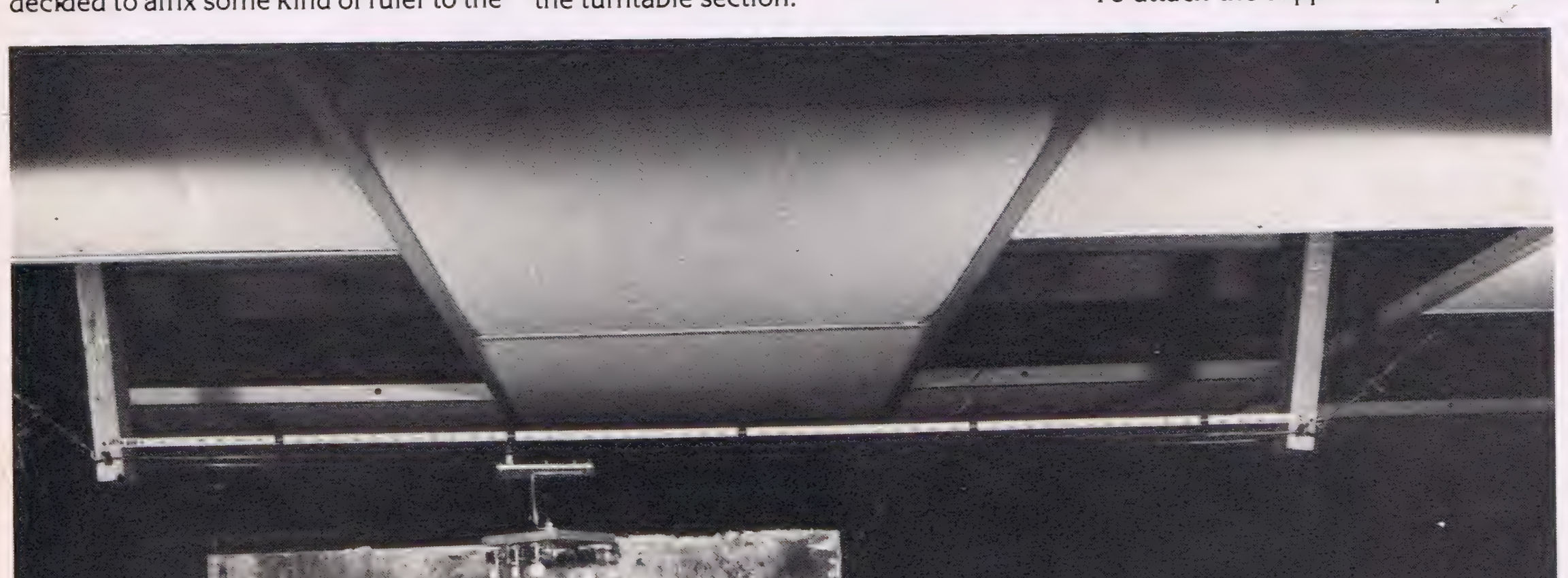
To make the top section of the sliding platform, I cut a piece of plywood ¼-inch thick and five inches square, which is the width of the suspension lines. In the center of each of the four corners, I put a small cup hook. As a pointer to the tape measure ruler, I bent a 2-inch-long piece of tin (¼-inch wide) at a 90-degree angle and attached it with a small wood screw to a corner close to one of the cup hooks.

The bottom section of the sliding platform was ½-inch plywood cut five inches square. Making an X from corner to corner to mark the center, I then drilled a hole to accommodate a ¼-by-1½-inch bolt. A regular washer was then put on the head side of the bolt and was inserted through the hole. A split-ring lock washer and a regular nut were added, and the whole assembly was tightened down so that the bolt became an integral part of the turntable section.

For precision support line spindles, I stumbled onto the idea of using old guitar keys. I was given a few three-spindle sets of keys by a friend who was going to throw them away. Since the spindles of the keys were not very large and would take many, many turns to raise the model even a tiny bit, I decided to affix wooden sewing thread spools to each of the spindles. To accomplish this, I first enlarged the holes in the center of each spool to accommodate the spindles of the guitar keys. I then found some small roll pins and drilled a hole just a little smaller than their diameter in both the spindles and the spools, making sure that once affixed in that position that they would still have enough clearance to turn. Lining up the holes in each, and using a nail sink, I drove the roll pins into both the spindles and the spools and they became permanently attached. While drilling holes, I also drilled a small hole in each of the spools, in the end away from the keys, to tie off the support lines.

When assembling the three pieces of the sliding platform, I had to make sure that everything was level and centered with the suspension lines. Turning the bottom section with one of the components unleveled or off center would cause unwanted side-to-side, up-or-down, or tilting movement of the animated model on the screen.

To attach the support line spindles to



The completed Line Suspension Aerial Brace in use and rigged to support the flying demon from *The Wages of Sin*.

the turntable section, I used 4 small 90-degree angle hardware brackets. The holes in the guitar key mounting plates were enlarged not only to accommodate a 1/8-by-½ inch bolt, but were made larger to allow for later leveling of the spindles with the turntable section. The brackets were then temporarily attached to the mounting plates with 1/8-by-½-inch bolts, split-ring lock washers and regular nuts.

Since the sets of guitar keys I had been given had three spindles each, to center them I simply lined up the middle spindle of each set with the bolt centered in the middle of the turntable section. Then with the spindles facing in and the keys on the outside, I set the brackets as close to the edge of the bottom of the plywood as I could, to give as much space between each set of spindles as possible. Checking again to make sure the spindles were centered, I attached the brackets and the support line spindles to the turntable section by inserting small wood screws through each bracket and into the plywood.

I leveled the spindles with the turntable section by loosening the bolts in the guitar key mounting plates, then measured and adjusted until all four corners were the same. That is where the overly large holes in the mounting plates became useful.

Two more 90-degree angle hardware brackets were used to attach the top and the bottom sections of the sliding platform. A small bracket was bolted to a larger bracket, so that the two of them together formed a U. The two brackets were lined up so that they were straight with one another, and a split-ring lock washer was used to make sure that they couldn't move and throw the alignment of the sliding platform out of balance.

A regular and a urethane washer were added to the centered bolt in the turntable section. The end of the U formed by the small bracket was laid over the centered bolt; a urethane washer, a regular washer, a split-ring lock washer and a regular nut were added and the whole assembly was tightened down. Once adjusted properly, this allowed the bottom section to turn freely, and it has never loosened.

To center the bottom turntable section with the top section of the sliding platform I laid them both on their edges. Since both sections had been cut 5-inches square, all I had to do to center them was to make sure their edges were flat on the table, align the sides and push them together so that the top of the U formed by the large hardware bracket was butted up with the top section. I then marked the holes in the bracket onto the top section with a pencil and drilled two holes to accommodate two ¼-by-½-inch bolts. I capped each bolt with a nut and tightened them down. The top and bottom sections were now centered with each other and the suspension lines, even when the bottom section was turned.

Purely for aesthetic reasons. I painted the whole sliding platform (except the moving parts) silver, and painted a red tip on the tape measure ruler pointer. After slipping the cup hooks over the suspension lines, my Line Suspension Aerial Brace, with the addition of support lines, was ready to use.

Supporting the Model

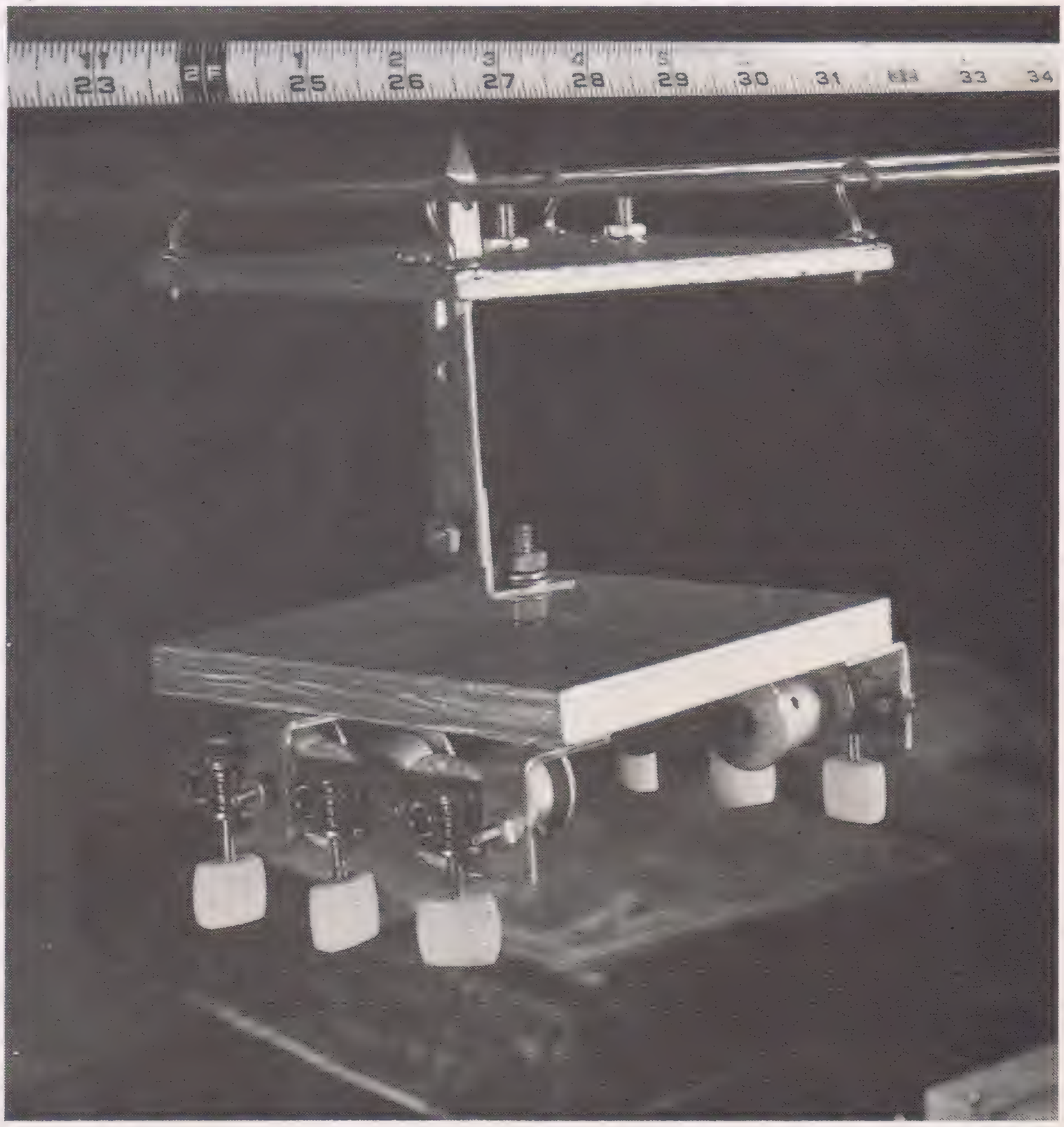
The type of line, cord or wire used for support between the brace and the animation model should be both thin and strong. The best choice for this is one of the mono-filament fishing lines currently on the market. I have had good results with 2-lb test line. although the line is *tested* at two pounds, it will support more weight. In the instance of an outer space sequence in volving an aerial brace, the line should be painted black.

The gleam from support lines is a problem inherent with any sequence involving the use of an aerial brace. While careful lighting and camera placement can eliminate part of the problem, the use of polarization filters may sometimes be required. It can help to take a very fine grade of sand paper and gently run the line through it to sand off its sheen. Some professional animators have their own line especially manufactured, use special dulling sprays, or paint the lines to match the background. Finally, "00" or "000" piano wire is excellent: it is very strong yet thin and virtually invisible. Be wary of "kinks" in the line while threading up or animating, since they are impossible to straighten and require replacement of the wire itself.

The most common practice of attaching the support lines to the animation model is to tie them directly around the outside of the model. However, this can be a problem if the line contrasts with the skin of the model. It is preferable to obtain a curved needle and insert the line through the model, around the armature, and tie it off close to the surface. With this method, the only concern is with the small knot, which can be painted to match the model.

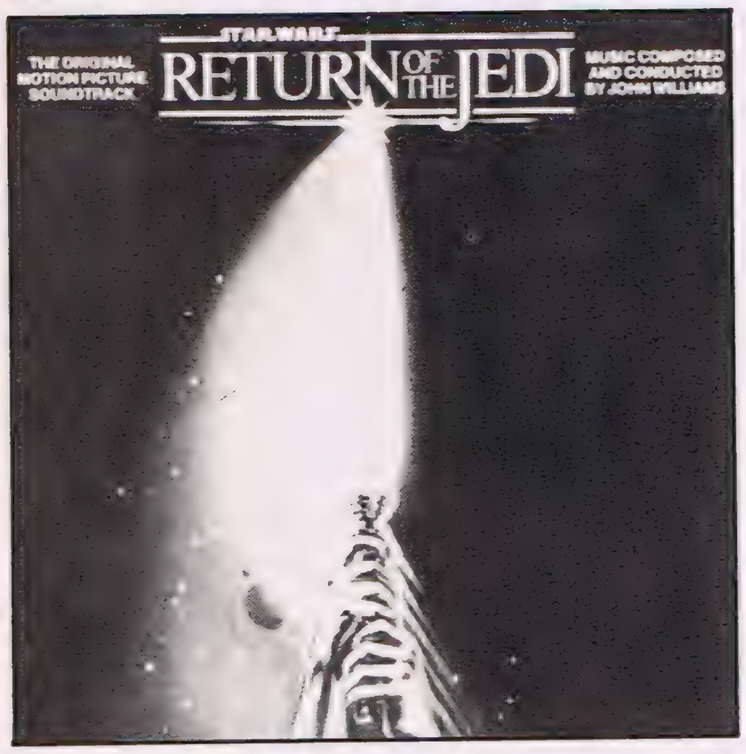
If the model is well balanced, only a few lines may be required. However, in some cases it is also necessary to employ an anchor line from the model to the stage.

An aerial brace is only a tool—as is an armature or a tie-down—that helps make an animation sequence possible. It should only be considered as such and nothing more. It is not advisable to dream up a sequence requiring the use of an aerial brace simply for the sake of using one. Just as stop-motion is most successful when well integrated into a story line, the use of an aerial brace is most successful when well incorporated into the needs of a stop-motion animation sequence.



A low angle view of the upper sliding platform. Note the thread spools attached to the guitar key spindles.

Soundtrack Spectacular



RETURN OF THE JEDI
John Williams' soundtrack for 3rd in *Star Wars* series.

BUCK ROGERS
The original motion picture soundtrack, composed and conducted by Stu Phillips.

FORBIDDEN PLANET
Original electronic soundtrack music in stereo from the SF classic.

BATTLE BEYOND THE STARS
Exciting orchestral score for humorous SF adventure. RARE!

BRAINSTORM
London Symphony plays movie score composed by James Horner.

STAR TREK II: WRATH OF KHAN
James Horner's score for the popular film. Digital.

THE ROAD WARRIOR
The hard-driving sequel to Mad Max with music by Brian May.

STAR WARS TRILOGY
For 1st time: the 3 themes on 1 album! John Williams' masterpiece!

THE AVENGERS
Themes from the series, plus THE NEW AVENGERS and THE PROFESSIONALS.

ALSO AVAILABLE—

MUSIC FROM THE 21st CENTURY
Tangerine Dream, Neil Norman and others. Available in cassette or LP.

MAD MAX
Dynamic, percussive music to futuristic adventure film.

OUTLAND
Jerry Goldsmith's score for the Sean Connery SF film.

HERCULES
Original movie soundtrack recording of Pino Donaggio's score.

ESCAPE FROM NEW YORK
Original soundtrack album from John Carpenter's hit film.

SILENT RUNNING
Music by Peter Schickele; songs by Joan Baez. Newly remastered.

CLOSE ENCOUNTERS OF THE THIRD KIND
John Williams's soundtrack score.

SUPERMAN THE MOVIE
John Williams's soundtrack on a two-record set.

HALLOWEEN II
Music to scream to, by the maker of Halloween.

DRACULA
Composed and conducted by John Williams.

THE BEASTMASTER
Original soundtrack composed and conducted by Lee Holdridge.

FLASH GORDON
Original soundtrack by Queen.

CREEPSHOW
Soundtrack composed by John Harrison. Wild synthesizer music and effects.

DARK STAR
Cult SF film soundtrack, music and dialogue.

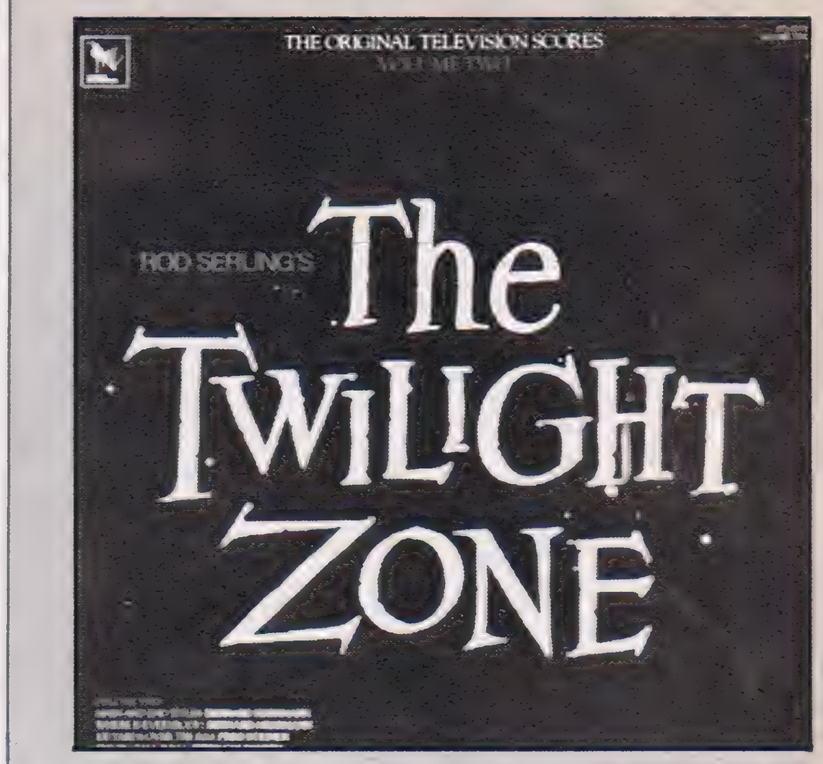
THEMES FROM SF/HORROR FILMS
"This Island Earth," "Shrinking Man," "Revenge of the Creature" and 9 more!

THE BLACK HOLE
John Barry's soundtrack score in a digital recording.

Soundtrack Spectacular

MUTANT
London National Symphony conducted by Richard Band plays his score.

CHILDREN OF THE CORN
Jonathan Elias's original soundtrack from the Stephen King chiller.



THE TWILIGHT ZONE
Original soundtrack music from Rod Serling's classic TV series — released for the first time, complete with extensive notes on the episodes and composers.

VOLUME I:
Music by Bernard Herrmann, Franz Waxman, Jerry Goldsmith, Van Cleave (includes Main Title theme by Marius Constant).

VOLUME II:
Music by Fred Steiner, Bernard Herrmann, Jerry Goldsmith, Nathan Scott (includes Herrmann's Main & End Title themes).

VOLUME III:
Music by Jerry Goldsmith, Bernard Herrmann, Nathan Van Cleave, Leonard Rosenman and Marius Constant's alternate Main & End Title music.

VOLUME IV:
Music by Jerry Goldsmith, Fred Steiner, Van Cleave, plus Bernard Herrmann's alternate Main and End Title themes.

SECRET AGENT FILE
18 cuts in all! Bond films, "Ace of Spies," "U.N.C.L.E.," "I Spy" & others.

OUTER SPACE SUITE
Music for TV & radio programs by the great Bernard Herrmann!

SOUNDTRACK SPECTACULAR DISCOUNT COUPON — SAVE OVER 10%

Mail to. **STARLOG PRESS** 475 Park Avenue South New York, N.Y. 10016

_____**DARK STAR**
List $9.98 Special: $8.98

_____**RETURN OF THE JEDI**
List: $10.98 Special: $9.98

_____**BUCK ROGERS**
List $9.98 Special: $8.98

_____**MAD MAX**
List $9.98 Special: $8.98

_____**FORBIDDEN PLANET**
List $8.98 Special: $7.98

_____**BATTLE BEYOND THE STARS**
Special: $7.98

_____**OUTLAND**
List $9.98 Special: $8.98

_____**HERCULES**
List $9.98 Special: $8.98

_____**BRAINSTORM**
List $9.98 Special: $8.98

_____**STAR TREK II: WRATH OF KHAN**
List $9.98 Special: $8.98

_____**SILENT RUNNING**
List $9.98 Special: $8.98

_____**THE ROAD WARRIOR**
List $9.98 Special: $8.98

_____**SUPERMAN THE MOVIE**
List $9.98 Special: $8.98

_____**DRACULA**
List $9.98 Special: $8.98

_____**STAR WARS TRILOGY**
List $10.98 Special: $9.98

_____**THE AVENGERS**
List $9.98 Special: $8.98

_____**MUSIC FROM THE 21st CENTURY**
List $8.98 Special: $7.98
☐ Cassette ☐ LP

_____**FLASH GORDON**
List $9.98 Special: $8.98

_____**ESCAPE FROM NEW YORK**
List $9.98 Special: $8.98

_____**HALLOWEEN II**
List $9.98 Special: $8.98

_____**CREEPSHOW**
List $9.98 Special: $8.98

_____**THEMES SF/HORROR FILMS**
List $9.98 Special: $8.98

_____**THE BLACK HOLE**
List $9.98 Special: $8.98

_____**TWILIGHT ZONE I**
List $9.98 Special: $8.98

_____**TWILIGHT ZONE II**
List $9.98 Special: $8.98

_____**TWILIGHT ZONE III**
List $9.98 Special: $8.98

_____**TWILIGHT ZONE IV**
List $9.98 Special: $8.98

_____**CHILDREN OF THE CORN**
List $9.98 Special: $8.98

_____**THE BEASTMASTER**
List $9.98 Special: $8.98

_____**MUTANT**
List $9.98 Special: $8.98

_____**SECRET AGENT FILE**
List $8.98 Special: $7.98

_____**OUTER SPACE SUITE**
List $9.98 Special: $8.98

_____**CLOSE ENCOUNTERS**
List $9.98 Special: $8.98

_____
NAME

_____
ADDRESS

_____
CITY

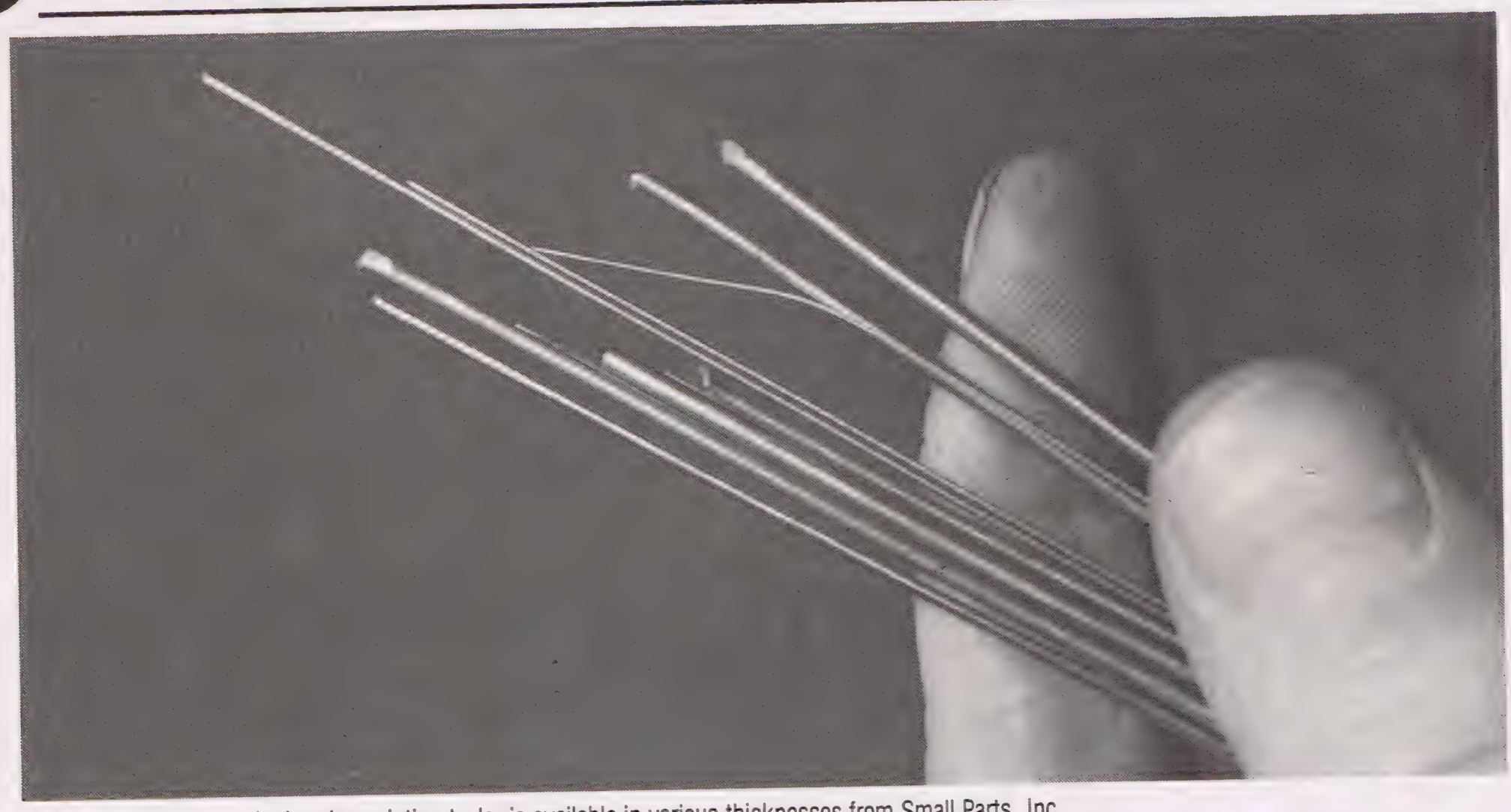
_____ _____
STATE ZIP

POSTAGE AND HANDLING CHARGES
U.S.A. — $1.50 for first record
$1.00 for each additional record
Canada — $3.22 for first record
$ .50 for each additional record
Foreign — $4.02 ea. record
Total for records: $_____
Add postage: $_____
Total enclosed: $_____
California residents include 6½% sales tax.
(Payment in U.S. funds only.)

NOTE: If you do not want to cut this page, send order on another piece of paper. Please allow 4 to 6 weeks for processing and delivery. All records guaranteed!

Ask for these exciting soundtracks at your favorite record store, or order direct at these special DISCOUNT **rates!**

This Discount Coupon Saves You Over 10% Per Record!!!



Music wire, used to make handy sculpting tools, is available in various thicknesses from Small Parts, Inc.

A Tool in Hand

A New Wrinkle in Sculpture Tool Construction: A Detailed *Account*

By JOHN DODS

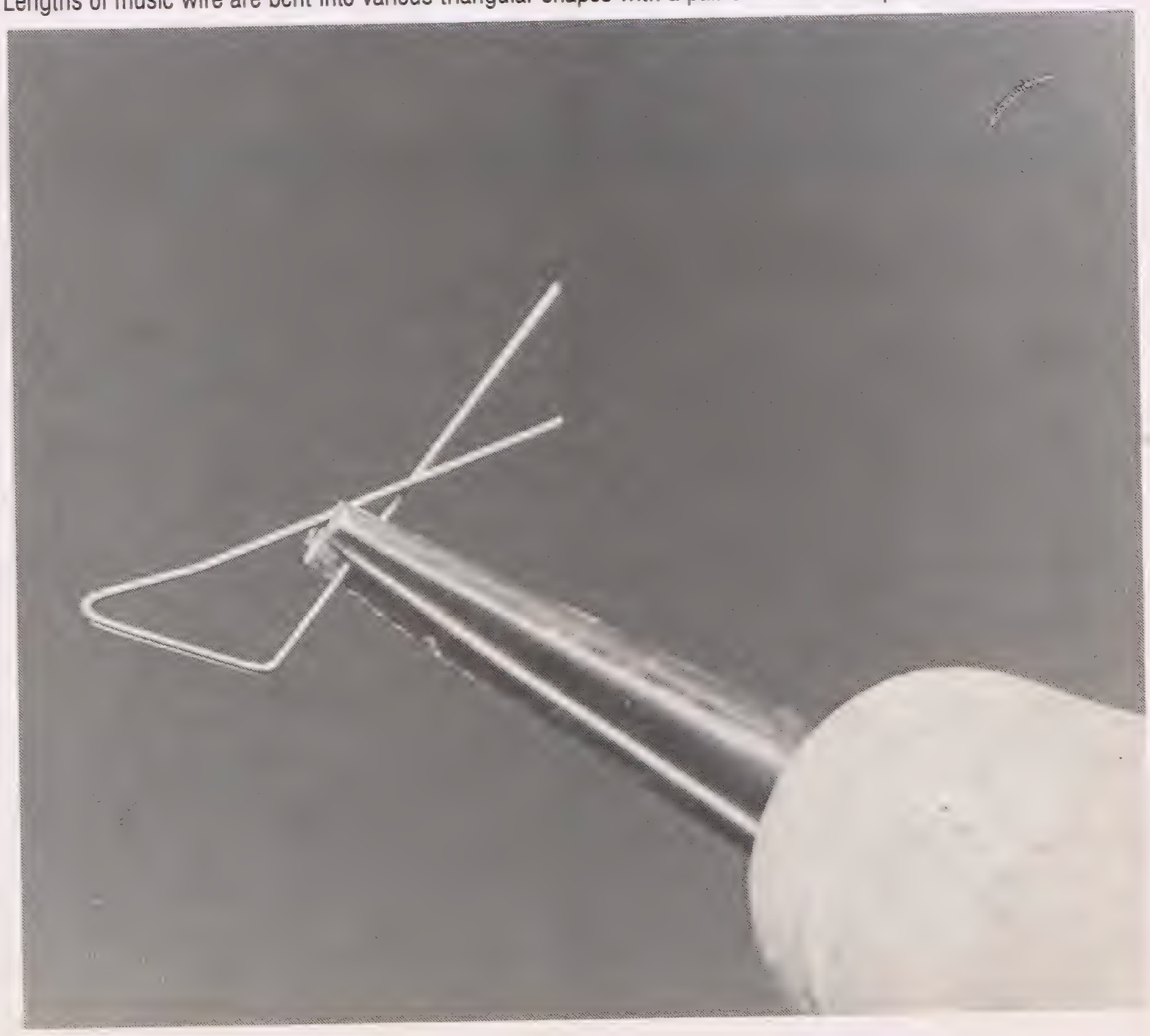
I love detail, but my plans for sculpting an intricately textured plateosaurus came grinding to a halt. I broke all of my "Thinline" sculpture tools by carelessly using them to clean the clay out of Ultracal molds. Worse than the thought of spending $40.00 to replace the tools, was the awful realization that the order would take four or five days to arrive in the mail. That's a long time to hang onto the elusive specter of artistic inspiration. I felt a need to sculpt that doesn't come often; I had an idea and I needed tools to get it out.

The set of tools that I hastily assembled from materials I had on hand turned out to be better for sculpting fine details than anything I had used before. Some "music wire" (from Small Parts Inc., 6901 Northeast Third Ave., P.O. Box 381736, Miami, FL 33138), old artist's paint brushes and needlenose pliers were all that were needed.

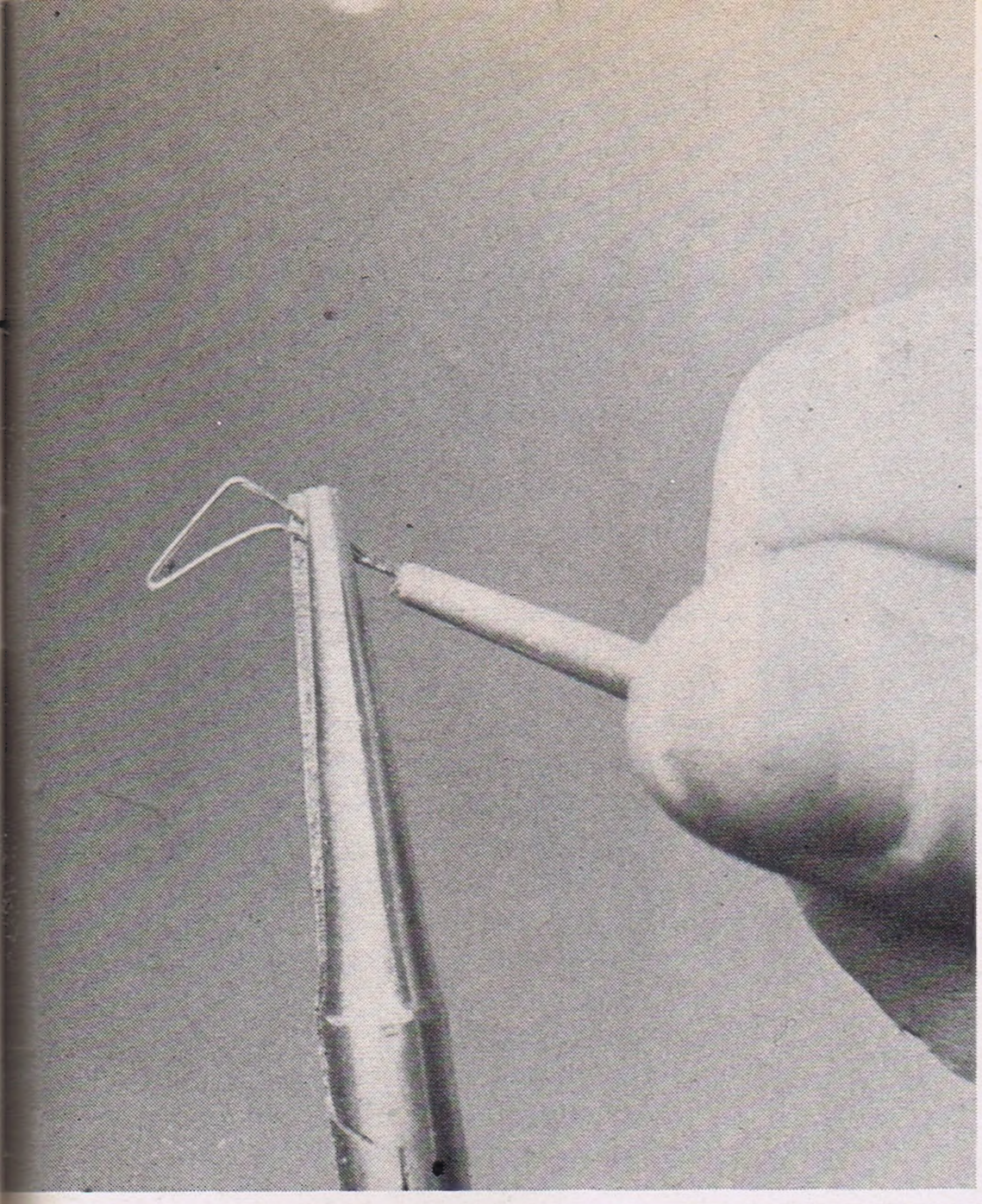
I pulled the bristles out of the 0 and 00 sized brushes (if the brushes used are of good quality the bristles may not come out readily and have to be removed by drilling with an electric drill and a small bit). Next, I bent lengths of very thin music wire into triangular configurations, and pushed the unconnected ends of the wires into the then empty paint brush openings. A good squeeze with the pliers flattened the openings and held the wires securely in place. No glue was necessary.

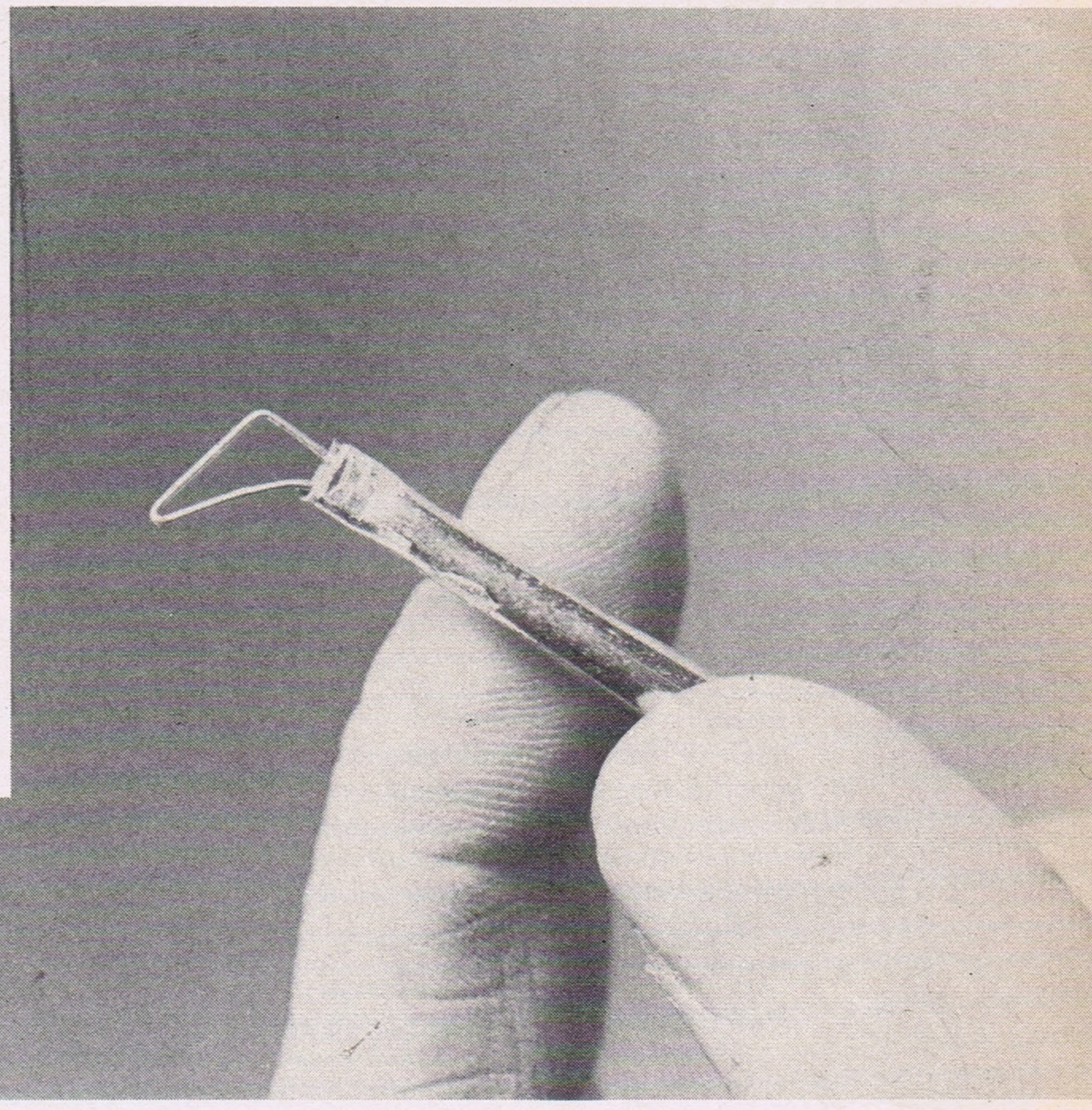
I was up all that night sculpting and texturing the plateosaurus. I couldn't complete the model in a single night but I stopped work satisfied—even the wrinkles had wrinkles!

Lengths of music wire are bent into various triangular shapes with a pair of needle-nose pliers.



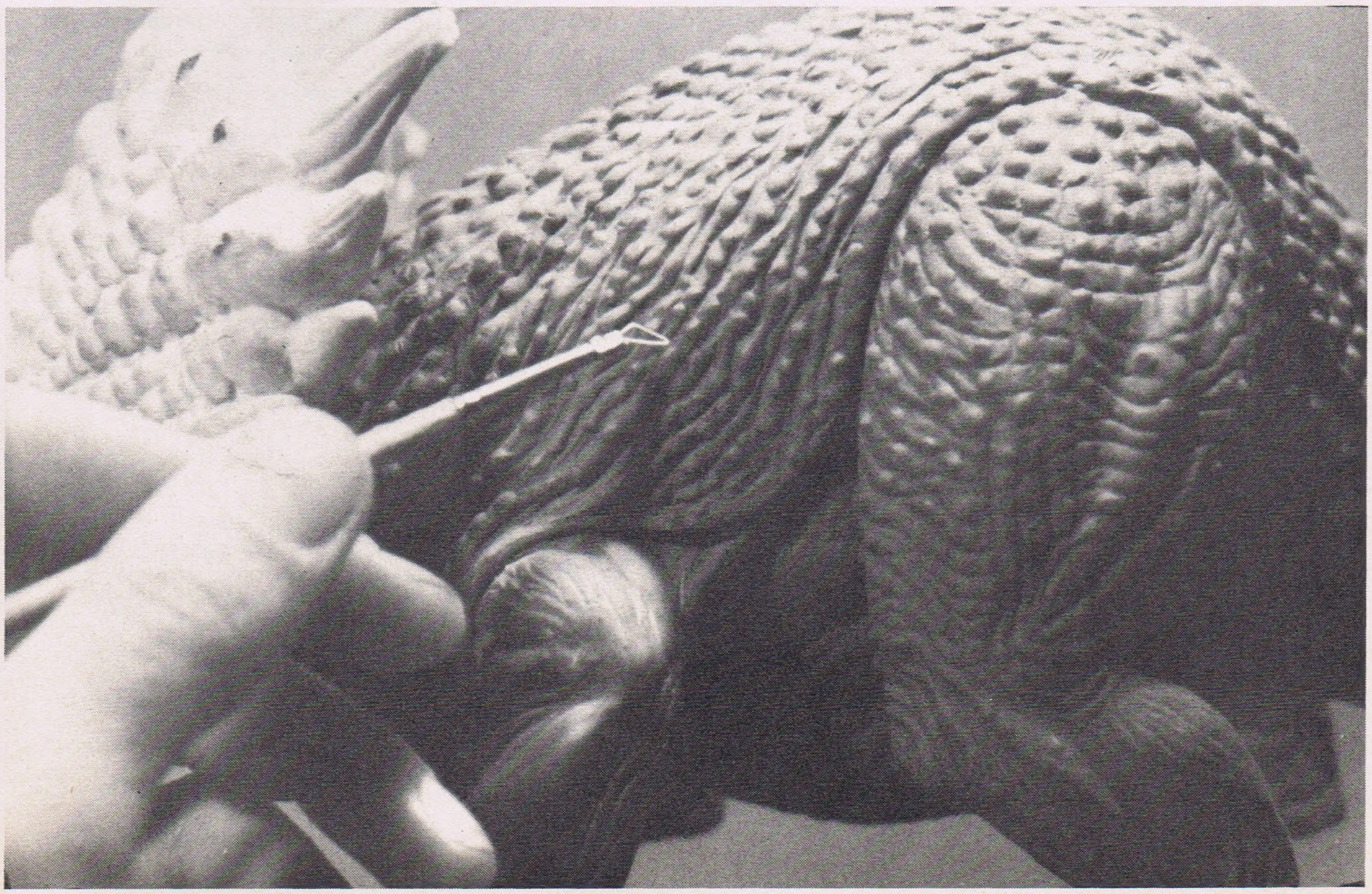
The pre-shaped wire is inserted into the end of an artist's paint brush that has had its bristles removed. The pliers hold the wire steady and give added leverage.





The finished tool, ready for sculpting. Squeezing the metal end of the brush together with pliers holds the wire in place.

A clay dinosaur is detailed with the homemade sculpting tool.



Director John Matthews animates Frog and Toad on the front porch. The tongue depressor is used to manipulate the mouths. The white gloves prevent build-up of dirty fingerprints on the puppets.

Frog and Toad *(continued from page 45)*

textured with Bondo. The roof tiles were cast in Bondo. The interior walls were covered with hand-drawn wallpaper. Furniture was made of clear pine and balsa wood. The windows were vacuum-formed from clear sheet plastic. Many small props were made with Sculpey, a plastic modeling compound. Sculpey can be sculpted to about any shape, then hardened permanently by baking. The piece can then be fine sanded and painted with acrylics.

Toad's house is surrounded by trees, rocks, flowers and mushrooms. All had to be hand made to fit the 'look' of the film. Trees and rocks were made of old-fashioned *papier-mache*. Strips of newspaper were dipped in white glue and draped over chicken-wire forms. Later, these were textured with Celluclay, a commercial fine-ground ready-mix *papier-mache*. Leaves and flowers were made of colored cloth, stiffened with white glue and attached to wire stems with hot glue and florists' tape. The mushrooms were made of Sculpey.

Matthews' home-built camera stand is an essential tool in his filmmaking. The stand is gear-driven and entirely motorized. The stand runs along tracks and allows pans, tilts and elevation changes as well. [See Kenneth Walker's article on building a camera crane in CINEMAGIC #16.] The stand also houses the single-frame drive for a 16mm Kodak Cine-Special, which can be racked over for viewing through the lens. The entire stand was built of wood and parts found at surplus stores. Matthews has plans to eventually computerize the stand. But for now, camera moves are laid out manually on paper tape, with help from digital counters on the electric shutter release. [See Chris Steven's article on building an electronic, digital frame counter in CINEMAGIC #25.]

Stop-Motion Storytelling

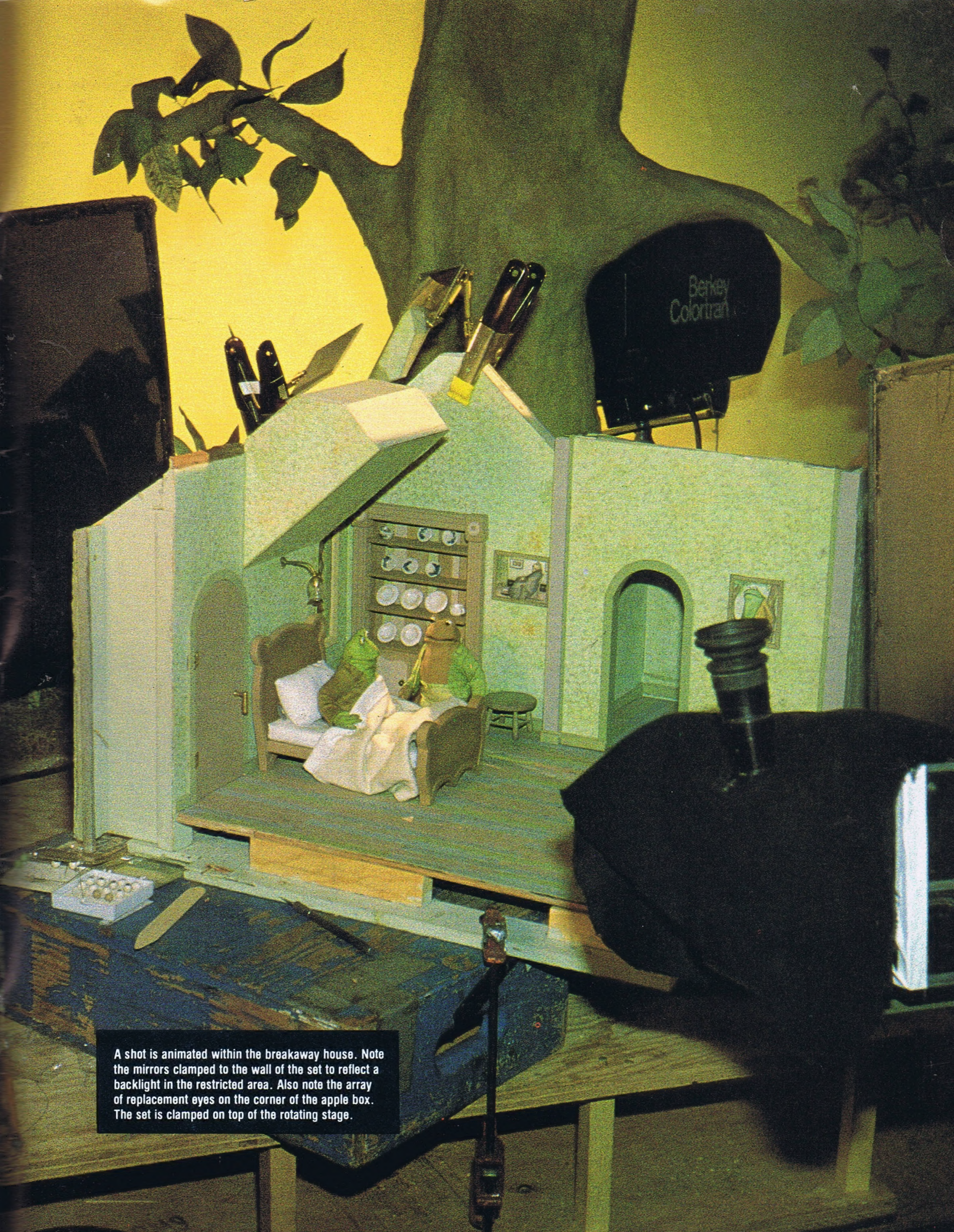
In spite of his attention to technical details, Matthews knows that hardware alone does not make a good movie. Audiences are more interested in storytelling than special effects.

"The ultimate compliment to me is that people forget that they are puppets," says Matthews.

Animation is hard work, too. This particular 16-minute film will take about a year to produce, with ten-hour days and six-day weeks not uncommon. Edison's observation that invention is "One percent inspiration and 99 percent perspiration" applies to filmmaking as well. Matthews firmly believes that dimensional animators need a special temperament to succeed. A unique combination of patience, concentration and talent is needed to maintain credible animation over the several hours required for even a five second shot. "Not everyone has it," says Matthews sadly.

Nevertheless, Matthews finds the rewards of stop motion are well worth the effort. The magical moment of first screening a successful daily, he observes, makes one forget the difficult hours spent animating lifeless puppets.

"It's amazing to me," muses Matthews while refilling his pipe, "how you can take all these raw materials and synthesize a believeable alternate world inhabited by imaginary beings." CM



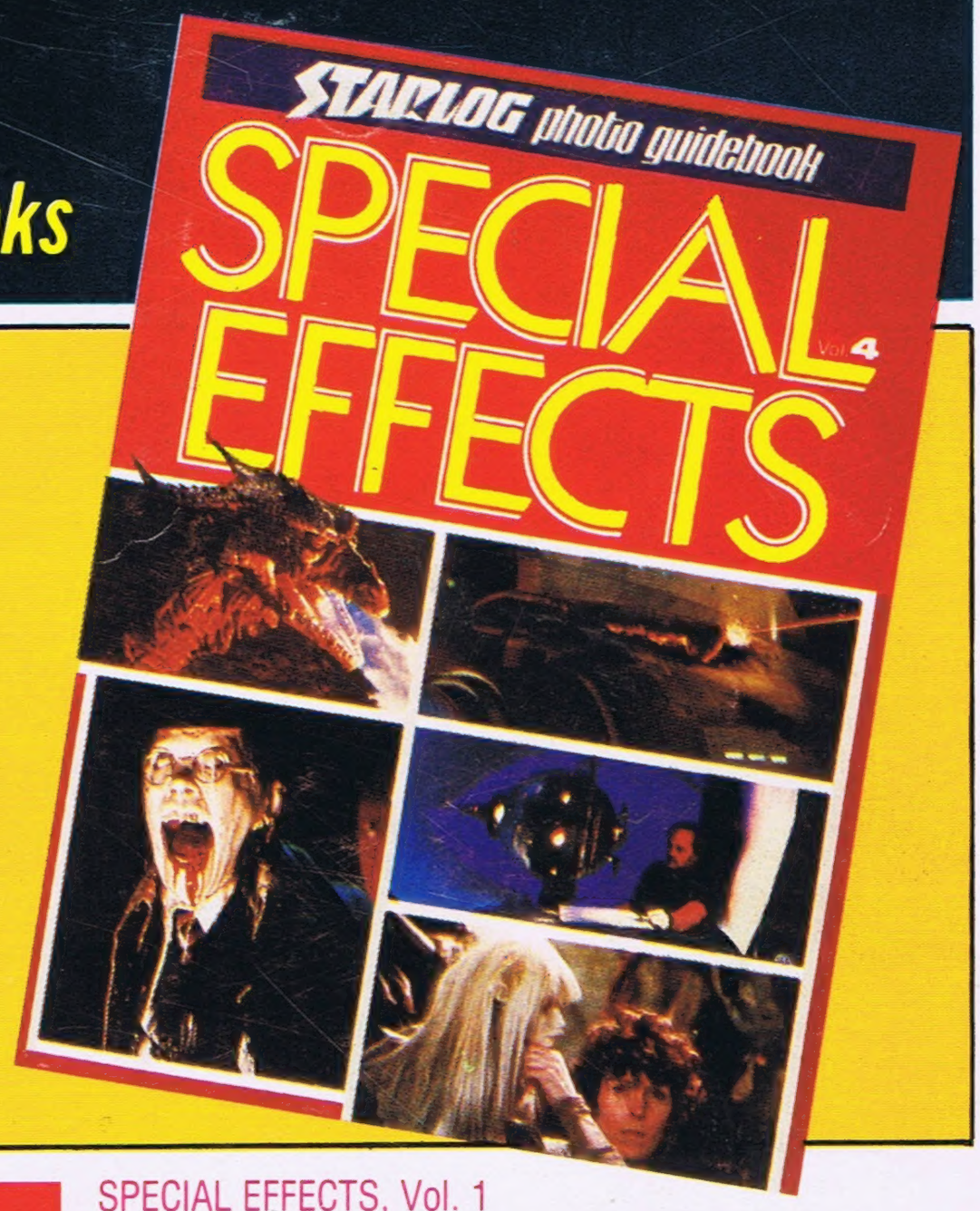
A shot is animated within the breakaway house. Note the mirrors clamped to the wall of the set to reflect a backlight in the restricted area. Also note the array of replacement eyes on the corner of the apple box. The set is clamped on top of the rotating stage.

STARLOG photo guidebooks

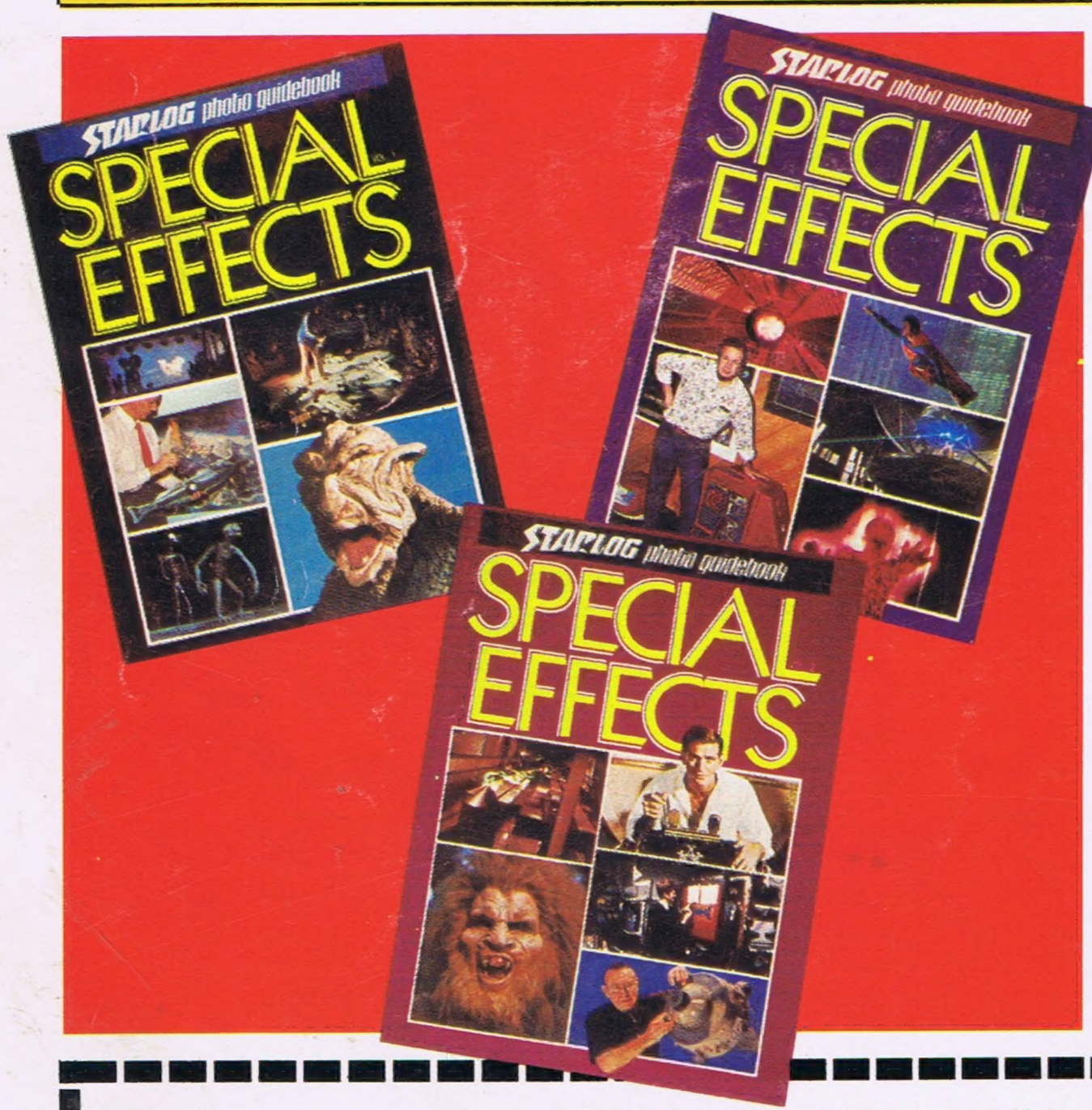
NEW!

SPECIAL EFFECTS, Vol. 4

Just published, this newest volume in the STARLOG Photo Guidebook series on Special Effects takes you into the magical realm of fantasy filmmaking. Detailed accounts of such films as *TRON, Raiders of the Lost Ark, Dragonslayer, E.T., Something Wicked This Way Comes, Star Trek II, Dark Crystal* and *Poltergeist* are lavishly illustrated with page after page of photos (many in full color). Journey into the realm of pure imagination that is fantasy filmmaking at its best—new worlds, new creatures, ghosts, aliens and fire breathing dragons.



FANTASY EFFECTS!



SPECIAL EFFECTS, Vol. 1

See the amazing world of miniatures and model animation—from *King Kong* to Ray Harryhausen and TV's *Land of the Lost.* Special blueprint section includes: the Nautilus from *20,000 Leagues Under The Sea*, Robby the Robot, the C-57D flying saucer from *Forbidden Planet*. Behind-the-scenes color photos from *Battlestar: Galactica, Space: 1999, The Lost Saucer* and SF classics like *Close Encounters, Flight To Mars, Thunderbirds, War of the Worlds, Star Trek* . . . more!

SPECIAL EFFECTS, Vol. 2

Exclusive interviews with masters of matte painting, effects, make-up and cel animation. A festival of effects films from space epics to splatter movies—pictured in color photos and technical diagrams. Special section on making the giant squid from Disney's *20,000 Leagues Under The Sea*, the Time Machine from George Pal's movie, and the Enterprise designs—from TV to theatrical. All this . . . plus more!

SPECIAL EFFECTS, Vol. 3

Take a trip into the gleaming world of modern film wonders—the technologies that create Hollywood's special effects for science fiction, horror and fantasy movies. Lavishly illustrated, this book explores computer animation, robot cameras and new optical processes. Journey behind the scenes of *Star Wars, Flash Gordon, ALIEN, The Empire Strikes Back, Altered States, The Black Hole,* TV's *Dr. Who, Cosmos*, and more! Discover the innerworkings of Doug Trumbull's new Showscan process and the double 70mm 3-D system.

Send to:
STARLOG GUIDEBOOKS
475 Park Avenue South
New York, NY 10016

Add postage to your order:

Total enclosed: $_____
NYS residents please add appropriate sales tax

Please allow 4 to 6 weeks for delivery of 3rd Class mail. First Class delivery usually takes 2 to 3 weeks.

ORDER NOW!

____ Vol. I	$8.95
____ Vol. II	$8.95
____ Vol. III	$8.95
____ Vol. IV	$9.95
Add postage for above:	
____ 3rd class	$1.55 ea.
____ 1st class	$1.75 ea.
____ Foreign Air	$2.55 ea.

Please make check payable to Starlog Press.

Name _____

Address _____

City _____ State _____ Zip _____